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*Fresh Journal of Medical Science*  
...  
THE 98 I  
DUBLIN JOURNAL

OF  
MEDICAL SCIENCE;

EXHIBITING  
A COMPREHENSIVE VIEW  
OF THE  
LATEST DISCOVERIES

IN  
MEDICINE, SURGERY, AND THE COLLATERAL  
SCIENCES.

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VOL. IX.

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1836.

THE  
DUBLIN JOURNAL

MEDICAL SCIENCE;

A COMPREHENSIVE VIEW

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## NOTICE TO CORRESPONDENTS.

The following papers have been received, and shall appear in the next Number : Dr. John Jacob's Report of the Queen's County Infirmary ; Mr. Hamilton's case of Periostitis of the Orbit ; Dr. Mac Adam's case of Aneurism ; the concluding part of Dr. Law's Paper ; and Dr. Churchill's Paper on Corroding Ulcer of the Uterus.

We hold over the communication of Dr. Adams of Belfast, until the result be known.

Original communications should be forwarded to the Publishers as soon as possible after the 1st of March, as all that department of the Journal must be in print before the end of that month.

## NOTICE

## TO THE EDITORS OF PERIODICAL WORKS ON MEDICAL SCIENCE.

As the Editors of this Journal have hitherto experienced much difficulty in procuring the Journals and Reviews published in Italy, America, and even in France, they take this method of reminding the conductors of such publications of the importance of using their influence to promote an uninterrupted intercourse between persons engaged in the publication of periodical works of science.

American authors will, perhaps, scarcely believe that their works cannot be procured at this side of the Atlantic, and the editors of the Italian Journals will probably be surprised to learn, that we can rarely enjoy an opportunity of availing ourselves of their labours. To remedy this evil, we propose to forward this Journal in exchange for any similar work transmitted to us through the houses of Berthes and Besser, Hamburgh, J. B. Balliere, Rue de l'Ecole de Medicine, Paris, Longman and Co., Paternoster-row, London.

The authors of Pamphlets, academic theses or essays, *brochures*, or other brief works, which, from their small size, are liable to escape notice, are invited to transmit copies through the same chaunnels.

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## NOTICE TO CORRESPONDENTS.

The following papers have been received : Professor Harrison on Rupture of the Bladder ; Dr. Corrigan's Observations on the *Bruit de Cuir Neuf* ; Dr. Churchill on Corroding Ulcer of the Uterus ; Dr. Montgomery on Disease of the Thymus Gland ; Sir James Murray on certain changes in Organic Elements ; Mr. Smith's Contributions to Pathological Anatomy ; Mr. Bracken's Case of Serous Discharge from the Scalp and Hair ; Mr. Porter's Observations on some anomalous states of the Larynx ; and Dr. Law's Case of Pleuropneumony.

Original communications should be forwarded to the Publishers as soon as possible after the 1st of May, as all that department of the Journal must be in print before the end of that month.



*Postscript by DOCTOR GRAVES, on the Use of Tartar Emetic  
and Opium in Fever.*

I am extremely glad to find a strong confirmation of my opinion concerning the utility of Tartar Emetic in certain cases of Fever, in its advanced stages, contained in an old work, quoted in the April Number of the British and Foreign Medical Review, p. 416. The author is Dr. Marryatt, of Bristol, who published in 1758, and who says :

“ I have seen many instances wherein a paper (*i. e.* about one grain and a half of Tartar Emetic) has been given every three hours, without the least sensible operation, either by sickness, stool, sweat, or urine; and though the patients had been unremittingly delirious for more than a week, with subsultus tendinum, and all the appearance of hastening death, they have perfectly recovered.”

The practice of giving Tartar Emetic in the advanced stages of *spotted and typhous fever*, did not exist in Ireland before I introduced it; nor am I aware that this practice was recommended in any British school. It is the combination of Tartar Emetic and Opium, derived from the analogy of the delirium in certain cases of fever with certain varieties of delirium tremens, that I claim peculiarly as my own. Since my paper was printed, I have had numerous striking instances of its utility.

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## NOTICE TO CORRESPONDENTS.

In consequence of the press of original matter, we have been obliged to postpone many important communications. An additional sheet has been added to the present Number.

Papers have been received from Mr. Porter, Dr. Lendrick, Dr. Griffin, Mr. Griffin, &c. &c.

The length of Drs. Kopp and Hirsch's Memoir on Thymic Asthma has obliged us to curtail the Scientific Intelligence in this Number.

## ERRATA.

No. XXVI.

Page 278, line 21, *for* suspended duration *read* suspended animation.  
— 280, — 8, *for* analogies *read* analogues.

*In the present Number :*

Page 372, line 4 from bottom, *for* brain *read* brim.





THE  
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MEDICAL AND CHEMICAL SCIENCE,  
1 MARCH, 1836.

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PART I.  
ORIGINAL COMMUNICATIONS.

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ART. I.—*On a peculiar Affection of the Nerves of the Teeth.*  
By ROBERT J. GRAVES, M. D., King's Professor of the Institutes of Medicine.

THE disease I am about to describe, though very singular and remarkable, has not been noticed by practical writers. A few preliminary remarks on the functions of the dental nerves appear necessary, in order to enable us to form a more exact idea of its nature.

The teeth are immoveably fixed in the jaws, and consequently require no nerves of motion so far as they themselves are concerned ; they are, on the other hand, abundantly supplied with nerves derived from the fifth pair, a nerve of sensation, and their nervous apparatus is developed and expanded within their substance in a manner which shows that nature has bestowed a greater degree of care on this than on any portion of the nerves destined to perform the office of touch. In this re-

spect they, to a certain extent, approach the perfection of the nervous apparatus of the organs of sense properly so called. In truth no part of the mechanism of the human body seems more admirable than that which thus associates together in function a soft nervous pulp and a solid osseous substance, and associated together they assuredly are, for the teeth, though encrusted with a coat of enamel as hard as steel, are very delicate organs of touch; the most minute bodies, when hard, may be distinctly felt if placed between their edges; and matters of more yielding texture, as a leaf of paper or a rose leaf, can be distinguished in the same position. The delicacy of touch enjoyed by the teeth has not attracted due notice, nor have its uses been sufficiently dwelt on, for to this sense are owing the ease and precision with which, as instruments, they perform their proper office of cutting, tearing, and grinding the food. It is from the feelings imparted to their edges that we derive instant knowledge of the situation, and many of the physical properties of the morsel, such as its hardness, consistence, shape, size, &c., in consequence of which it is either at once submitted to the action of the teeth, or is removed to be placed in another part of the mouth, and in a more convenient position, where teeth of a different shape and form may be brought to bear on it. Without this exquisite sense of feeling one row of teeth could not act in concert with the other, the incisors and molars in the under could not adapt their cutting and grinding surfaces to those in the upper jaw, nor could certain information be conveyed to the muscles of the lower jaw, for the purpose of commanding the consecutive motions they are called on to perform. In fact the teeth are not merely cutting instruments; but are endowed, as it were, with intelligence; they are, it is true, assisted in ascertaining the size, position, hardness, and other physical qualities of the morsel by the tongue and cheeks, but they perform besides a peculiar function, that of feeling the intimate texture of what is submitted to their immediate operations, thereby warning us instantaneously when the morsel contains anything detrimental

to their own substance; without this sense of touch how soon would our teeth be chipped away and worn by minute but hard matters, as grains of sand, which no care can entirely exclude from our food, but which the teeth detect at once when in contact with their edges, and which they at once refuse to act on. In truth the teeth may, in this point of view, be considered as a sort of fingers fixed within the mouth, destined to feel, examine, and adjust the morsel preparatory to placing it in the position most favourable to its mastication.

*It is very strange that no example of paralysis of the dental nerves has as yet been observed.* This subject has engaged my attention for several years, and I have been in the habit of inquiring from all my paralytic patients whether the sensibility of the teeth was lessened, but in no one instance have I been able to detect any thing approaching to loss of sensation in these organs, an immunity difficult to account for, and I believe unexampled, for I am not aware of any other nerve, either of sense or of motion, which is not occasionally involved in the progress of paralytic affections; nay, I have more than once been obliged to direct the removal of teeth in hemiplegic persons in consequence of toothach on the paralytic side. This immunity from paralysis, corroborated by the extensive experience of my friend Mr. McClean, seems the more surprising when we recollect how subject the dental nerves are to the opposite affection, or a morbidly increased and exalted state of sensibility, constituting the various forms of toothach.

Some physiologists have been inclined to suppose that the temperature of bodies is judged of by other nerves than those which are the instruments of the sense of touch; but it appears that if other arguments against this hypothesis are wanting, the instance of the teeth alone would be sufficient, for here most undoubtedly the sense of touch and the discrimination of temperatures are both functions of one and the same nerve, for the teeth possess but one.

The disease, to which I would now direct attention, consists

in an insuperable desire on the part of the patient to grind his teeth. This desire originates in a disagreeable, uneasy sensation in the teeth themselves, and is for the moment alleviated by forcibly grinding them together, but immediately returns when the patient ceases to perform this action, which is therefore continued, when the disease is confirmed, during the entire day. When asleep the patients no longer grind their teeth, the grinding being in all cases the result of voluntary motion. I have now become acquainted with the cases of four persons so affected, and it is very remarkable that they were all of a confirmed gouty habit. The first person in whom I observed it was my late excellent and esteemed friend the Countess of Egmont, in whom this habit had become so confirmed that she was impelled to indulge in it continually, for the moment she desisted, the uneasy sensation in the teeth became insupportable, and consequently she was obliged to give up all society for several years before her death. The grinding was in her case strong and forcible, and having been so long continued, at last nearly wore down her teeth to the very sockets. I consulted several of the most eminent surgeons in London on her disease, among the rest Mr. Abernethy, but none were able to suggest any means for its alleviation. She was so thoroughly convinced that some permanent cause of irritation existed in the teeth themselves, that at different times she had several of them drawn in hopes of procuring relief, but they were found to be perfectly sound.

I was lately consulted by the Rev. Mr. B., likewise of a gouty habit, and who is driven from general society by precisely the same affection. In him the molar teeth are worn quite flat and smooth, and the incisors and canine teeth have undergone a remarkable change, particularly the former, which being constantly *whetted* by each other, have acquired chisel-shaped edges, and are so sharp that when he inadvertently passes his tongue over them, they make an incised wound, like that inflicted by a sharp knife. This gentleman's teeth have



the enamel all worn off the crowns, and consequently their surfaces present a section of the internal or osseous portion of the tooth; and it is remarkable that in this as well as in the other cases, the internal or nervous cavity of the tooth is never exposed, but appears to be filled up with bony matter, in proportion as the process of grinding wears away the crown, just as has been observed in the case of old men, such as sailors, who have been in the habit for many years of chewing sea-biscuit. The same phenomenon has been likewise observed in the teeth of skulls supposed to have been Roman, from which it has been inferred that they had generally subsisted on very hard food.

The third case was that of a young clergyman in the south of Ireland, likewise of a gouty habit, and who was afflicted with *tic douloureux* of several branches of the fifth pair, and, among the rest, of the dental nerves of the left side. In him the teeth on the left side only were ground down, and the disease ceased after a continuance of two years.

The third case I have not seen, but the following particulars have been furnished by my friend Dr. Battersby.

“Henry W., County Meath, aged 60, has suffered from attacks of gout for the last thirty years, which are now so tedious and severe as to confine him to his bed for at least five months annually; about three years ago he was observed gradually to get a habit of grinding his teeth, which he now does constantly while awake, and so loudly as to be heard in the next room; he is not conscious of it unless when spoken to, I believe; and his teeth are quite ground down. Two years ago he had an attack of what he called gout in his teeth, and wanted to have them all pulled out.”

Although I have as yet been unable to discover any mode of alleviating the sufferings of patients afflicted with this hitherto undescribed disease, I have thought it right to submit the preceding short account of its chief symptoms to the consideration of the profession, in the hope that others may be induced to publish the results of some successful method of treatment.



ART. II.—*Practical Observations on some of the most common Causes of tedious Labour.* By ROBERT LITTLE, M.D., Physician to the Belfast Hospital, Physician Accoucheur to the Belfast Lying-in Charity, Physician to the Ulster Female Penitentiary, Lecturer on Midwifery and the Diseases of Women and Children, &c.

THERE is no subject connected with obstetric medicine that should be more carefully studied than that of tedious labour, on account of the great variety of causes by which it may be produced, and also the dangerous effects it may have both on the mother and child. When the size of a healthy child at the end of utero-gestation is compared with that of the parts through which it must pass before it can be expelled from the mother, it is wonderful that labour, in almost every case, is not far more tedious than it is, especially when the expelling powers are compared with the resistance to be overcome. Of all the causes of tedious labour there are none of such frequent occurrence as those residing in the uterus itself. It is not my intention in the following observations on tedious labour to consider the subject generally, but confine myself to weak, irregular, or inefficient action of the uterus, or rigid undilatable state of its orifice, which conditions are found sometimes to coexist, and at other times to be quite independent of each other. When the action of the uterus is strong, and when its orifice yields easily to the impelling force applied through the medium of the presenting part of the child, it is very seldom that labour is protracted; but it unfortunately too often happens that the impelling power of the one is quite too feeble to overcome the resistance of the other. Malposition, or a disproportion between the size of the child and the capacity of the pelvis, is comparatively of but rare occurrence, and it is more frequently with a feeble action of the uterus, or a rigid state of its orifice, that the accoucheur has to contend, than any other cause of tedious labour. The bad effects which may

result from irregular or weak action of the uterus, or too great rigidity of its orifice, are very numerous, and may be confined to the mother or child, or be extended to both. It is impossible for the womb to continue to act beyond a certain time without exhaustion taking place, not only of its own powers but those of the system at large, and it is on that account absolutely necessary that labour should be finished within a definite time. It requires uterine action in all cases as the chief agent in the process of parturition, and this action is allowed too often to be uselessly wasted, so that the assistance of instruments becomes necessary to supply its place.

In the practice of midwifery, instrumental assistance, from various causes, may be necessary when there is no malposition of the child nor disproportion between the size of the head and capacity of the pelvis; but these cases are very rare, and it will mostly be found that either too much resistance on the part of the orifice of the uterus, or a want of that general contractile force, necessary to overcome the resistance of all the parts through which the child must pass before it can be expelled, is the cause why the use of extracting instruments is necessary. It is impossible in such a process as parturition to supply, in a safe and efficient manner, the want of uterine action by any means that can be employed of an extracting kind; and it is on that account, both for the safety of the mother and child, of the greatest consequence that labour should be accomplished by the natural powers alone. No matter how dextrous an accoucheur may be in the application of instruments, there will, in two cases out of three, either be considerable injury inflicted on the mother or child, or both. I feel satisfied that in the practice of midwifery, at the present time, there is very generally too little attention paid to those means necessary to keep up the action of the uterus, and diminish the resistance produced by unusual rigidity of its orifice; and this arises in most instances from the great confidence that is placed in the safety and power of instruments.

When uterine action is strong, and when dilatation of its orifice is easily accomplished, it is very seldom that any inflammatory affection succeeds delivery ; so that tedious labour is to be considered not only dangerous on account of the necessity it too often produces for the use of extracting instruments, but also on account of inflammation of the genital organs, or some of the more important neighbouring parts, which it is liable to excite. Out of nearly six hundred patients who have been attended during their confinement from the lying-in charity under my direction, there have been only four cases altogether of inflammation of the uterus, or of that viscus, in common with some of the surrounding parts. In two of these cases of inflammation, instrumental assistance was required, and in the other two, although no extracting means were employed, yet the labour was very protracted. It might naturally be expected that the number of cases of inflammation would be very great, as all the patients who are attended from the charity in question, remain in their own habitations during their confinement, and are there, of course, exposed to bad air, dirt, cold, improper food, drink, and many other predisposing as well as exciting causes of inflammatory action. I attribute this comparatively rare occurrence of inflammation of the genital organs, or of these in common with the surrounding parts, to the great attention which is paid in the Belfast lying-in charity to the use of such means as will keep up regular and efficient uterine action, and at the same time promote that relaxation of its orifice that will admit of the expulsion of the child without the production of too much local or general debility, or local or general irritation.

In all works on midwifery, very considerable stress is put on the necessity of having labour completed within a given time, and this is urged not only for the safety of the mother, but also that of the child. The means, however, which have been employed for the purpose of fulfilling these ends, have been very various, and in my opinion, in many instances more injurious than useful. I will, therefore, now direct my attention to the

separate consideration of what means can be trusted to, for the purpose of exciting regular and efficient contraction of the uterus on the one hand, and relaxation of its orifice on the other. A rigid state of the orifice of the womb is most commonly to be met with in first labours, but this is particularly the case when the female is somewhat advanced in life. Although it is most generally in first cases that rigidity of the orifice of the womb offers the greatest resistance to the expulsion of the child, yet a similar state very frequently occurs after the birth of several children, and this is even the case when the female has been married and borne children at an early period of life. There are some women possessed altogether of great rigidity of muscular fibre, and it is mostly in these that an unyielding state of the orifice of the womb is to be met with in first or in subsequent labours. In almost all those cases where the part in question yields with great difficulty, so as to allow of the expulsion of the child, there is a resisting state of the vagina and perineum. It would therefore appear to me that a tedious labour, from the cause I have just been considering, will be frequently met with in particular constitutions, no matter how favourable other circumstances may be to its speedy termination.

In cases of tedious labour, especially when the delay arises from resistance on the part of the orifice of the womb, there is very frequently a low inflammation excited in the aperture in question, which may give rise, in some instances, to considerable resistance in subsequent labours. I have met with two or three well marked cases of this kind, in patients whose history I was perfectly acquainted with. This thickening of the orifice of the womb which succeeds to parturition, as the result merely of a slight inflammatory action, does not produce a disorganization of the part, but merely a thickening, which is in all probability confined to the cellular tissue; and it is therefore to be distinguished from scirrhus induration, which is sometimes to be met with in the orifice of the womb, at an unusually early



period of life. What is very generally termed scirrhus of the orifice of the womb, occurring during pregnancy, is not at all, in the great majority of cases, allied to that affection, and is merely the result of injury inflicted on the part from the use of instruments, or some other cause, giving rise to a great degree of induration.

It is a very common thing for the bowels during the entire, or almost the entire, course of pregnancy, to continue in a very inactive state; this is partly owing to the pressure of the womb, and partly, in all probability, to the diminution of energy which the lower intestines in particular must experience during the latter months of utero-gestation.

I am quite satisfied that the uterus sometimes suffers very much on account of this inactive state of the bowels, but more particularly with reference to the dilatation of its orifice during labour. In order to obviate this state of the bowels, it is of course necessary to employ laxative medicines with the greatest regularity, but this is a thing which is too often neglected, and hence that unyielding state of the uterus which I have been considering is of such frequent occurrence.

The dilatation of the orifice of the womb may be very slow, and yet it may not be the cause of delay in the expulsion of the child, for in order that rapid dilatation may take place, the impelling force by which it is affected must be of a certain degree of strength. It is no very difficult matter to determine whether weak or irregular uterine action or a rigid state of its orifice be the cause of delay in the expulsion of the child. In those cases where the uterine orifice is not easily opened, so that the presenting part of the child can pass it with ease, there are certain characteristic marks by which it may easily be detected by the touch, so that there is little danger of confounding a want of efficient uterine action and the rigidity in question together.

The remedies which have been employed for the purpose of relaxing the orifice of the womb, and of thus diminishing

the duration of labour, have been very various, and some of them badly calculated to accomplish that important object. I will therefore now enter into their separate consideration, in order that the value which is to be attached to each may be duly appreciated.

Of all the means which have been used for the purpose of relaxing the orifice of the womb blood-letting, I think, may be considered as that which has taken the most prominent place in almost every country where the obstetric art is attended to on scientific principles. There cannot be the least doubt that the loss of blood has a very powerful effect in relaxing the entire muscular system, and of course the orifice of the womb, in common with the rest. It so happens, however, and very unfortunately for its success, that while it diminishes the resistance of the one part of that viscus, it weakens the propelling powers of the other, so that the advantages which would be gained by it on the one hand, would in all probability be lost on the other: it requires, therefore, in the use of blood-letting for the purpose of relaxing the orifice of the womb, in cases of unusual rigidity, the greatest caution lest the propelling powers of the entire organ should be so far impaired, that the labour might become tedious, not from any resistance, but a want of a sufficient uterine action to accomplish the expulsion of the child. I have seen altogether six cases where the abstraction of a quantity of blood, not exceeding in any one of the cases twenty-four ounces, had the effect of completely suspending the action of the womb; and in three of the patients out of the six, the use of the forceps became necessary, in order to save the life of the mother and child. I have certainly again witnessed, in other instances, the very best effects from the loss of blood in cases of rigidity of the orifice of the womb; and although it is a remedy that may do good, yet it is one that may do a great deal of harm on the one hand, while it does good on the other. The advantages of blood-letting, in the state of the uterine orifice in question, have been highly extolled by Dewees and

other eminent accoucheurs, and one would suppose, from the manner in which they recommend it, that it would in every instance prove an infallible remedy. In cases of very great rigidity, when the general state of the system favoured it, I have in three or four instances carried depletion as far as forty ounces, and certainly in all cases with the effect of diminishing, to a greater or less extent, the resistance in question, but at the same time the propelling action of the uterus was impaired, and while a certain amount of good seemed to result in one respect, a very great degree of injury was produced in another. It is certainly a most difficult thing to take away the quantity of blood that will promote relaxation of the orifice of the womb, without impairing its general tone, and I am satisfied that it is a remedy that will, in nine cases out of ten, retard instead of promote the progress of the labour. When the remedy in question is employed, I would advise the blood to be taken away, by means of leeches, from the verge of the anus. I have witnessed a greater degree of relaxation, from six or eight ounces of blood taken away in this manner, than five times the quantity taken away by the use of the lancet. The good effects of local bleeding, in local diseases, have been for many years well known in every department of medicine, but for the diminution of the resistance of the orifice of the uterus in tedious labour, they have hitherto been very little tried. Between the hemorrhoidal and uterine vessels there is the closest connexion, and any impression, whether of a stimulating or debilitating nature, which is made on the former, is very soon communicated to the latter. I do not think that this arises merely from the proximity of the parts, but rather on account of a kind of sympathy established through the medium of their respective nerves, so that the loss of a quantity of blood, which could not possibly do any good between other neighbouring parts of the body, whose actions are less intimately connected together, would be productive of the most decidedly good effects when taken from the verge of the anus, in that unyielding state of the orifice of the uterus I have

been considering. I would therefore advise, when it is deemed necessary to bleed for the purpose of diminishing rigidity of the orifice of the womb, that the blood should only be abstracted in small quantities, and by means of leeches, in the way I have stated. I have tried the application of a number of leeches not exceeding twelve, in about eight cases of rigidity of the orifice of the womb, and have found in every instance an improvement in the state of the part in question, without any derangement of that power necessary for the expulsion of the child. In addition to the benefit to be derived from very small bleedings from the verge of the anus, there will be a very considerable amount of good produced by the application of large folds of flannel, wrung out of warm water, in order to keep up the bleeding. Moist warmth has always a relaxing effect, when applied to the surface of the body, but this is much more considerable, if preceded by the loss of even a very small quantity of blood.

On the efficacy of warm fomentations, unaccompanied with the loss of blood, in the way I have recommended, I think there is the greatest uncertainty; and speaking from my own experience in cases of rigidity of the womb, I would say that in two cases out of three, such applications are almost completely inefficacious. I do not, therefore, think, that heat of itself is at all to be trusted to, no matter to what external part it be applied. On account of the close sympathetic connexion that subsists between the lower intestines and womb, I think different substances, thrown up in the form of enemas, are productive of far more benefit in that state of the orifice of the womb I have been considering, than any other class of remedies with which I am acquainted. Opium, and other narcotics, which are frequently employed, when reduced to a fluid form, as enemas in an unyielding state of the orifice of the womb, are in most instances highly objectionable, on account of their producing a suspension of that muscular action necessary for the expulsion of the child. I think that the use of remedies of an anodyne nature is, like blood-letting, very likely to throw one obstacle in



the way, while it removes another. I am therefore of opinion, that no class of remedies require to be used in that state of the orifice of the womb in question with greater circumspection, than that of anodynes. I have employed a solution of opium in several cases, and I have invariably found it to have a powerful effect in diminishing the action of the womb, without producing any very decided change in the state of its orifice. In one instance, where the quantity thrown up as an injection did not exceed forty-five drops of laudanum, the action of that organ was completely suspended for nearly twenty hours, notwithstanding that before its employment, it had been going on with the greatest regularity for a considerable length of time. In this case, the uterine action after it recommenced was exceedingly feeble, and the state of the orifice was precisely the same as before the anodyne injection was administered. On account of the necessity in all cases of keeping up the action of the womb, as a thing absolutely requisite for the expulsion of the child, no remedy of an anodyne nature is likely to prove useful, when employed as an injection, in cases of tedious labour proceeding from the state of the uterine orifice in question. I would therefore wish to exclude from whatever injection be used for the purpose of promoting the relaxation of the orifice of the womb, anodynes altogether. There is one remedy of a narcotic nature that I would wish particularly to be laid aside, because, notwithstanding the valuable relaxing effects which it is said to possess, yet I am convinced that the great reduction of the general energy of the womb is productive of more harm than all the good that can possibly result from the relaxation of its orifice, I allude to tobacco. It is wonderful what a powerful effect this substance produces on the entire system, and notwithstanding that it is capable of effecting great relaxation when employed in the form of enema, yet its effects are to be considered, in nine cases out of ten, dangerous, on account of the manner in which it weakens or suspends the impelling powers of the womb. From the trials I have made of tobacco in the

form of enema, I would be inclined to view it, in cases of rigidity such as I have been considering, as a means calculated not only to derange the impelling powers of the womb, but also favour, by the general relaxation which it produces, uterine hæmorrhage after the birth of the child. I tried the effects of the tobacco enema in three cases of rigidity, and in one of the three there was uterine hæmorrhage, accompanied with great general torpor, and in an other there was a very profuse discharge, although the womb was not in a very inactive state.

When there is very great rigidity of the orifice of the womb the relaxing effects of belladonna have been tried, not however in the form of enema, but as an application to the part immediately effected. I am led to believe that belladonna, employed in this way, or in any other form for the purpose of diminishing rigidity, is any thing but profitable, and may in some instances produce very dangerous constitutional effects. I will suppose, however, for a moment, that this medicine will produce the change to be desired in the orifice of the womb, without producing any dangerous constitutional effects; but were this even the case, still I will maintain that it is a dangerous application, on account of the loss of general uterine energy which it must necessarily occasion.

In the form of enema, I have tried the effects of an infusion of hippo, either alone, or in combination with common salt, in several cases of rigidity, and always with the most decidedly good effects; the quantity of hippo I usually employ for each enema is half a drachm, infused for half an hour in a quart of boiling water, to which about two ounces of common salt are added, if the bowels have not been previously well opened. When the bowels have been however thoroughly cleared out before or shortly after the accession of labour, the hippo infusion is thrown up without any addition, and repeated in half the quantity every hour until the desired effect is produced. The temperature at which the infusion should be used ought never to be

lower than that of the blood, and it might even with very great advantage be a few degrees higher: sometimes but certainly not frequently this enema is retained an hour. It should as a general rule be repeated immediately after it is rejected, until that relaxation is produced in the orifice of the womb, which is necessary to allow of the expulsion of the child. I have found the hippo enema only in a very few instances produce sickness of the stomach, and its operation would appear to me to be pretty much confined to the parts or neighbourhood of the parts to which it is applied. It would therefore seem that it acts on the nerves of the rectum, and through these on those of the uterus, so as to produce relaxation of its orifice. When an anodyne is given in any form the torpor of the muscular system which ensues is in most instances of considerable duration, and hence that diminution of the propelling powers of the womb, which succeeds to its use, and which continues a greater or less time, according to its nature and the extent of its dose. In the use of hippo, as an emetic or to any amount that will occasion sickness, there will be no doubt a degree of general muscular depression produced, but this will be of very short duration, if compared with that produced by the use of anodynes, and when reaction takes place the muscular contractions will be far more energetic than they were before it was administered. I do not consider emetics of any kind safe or profitable during labour, and had the hippo enemas the effect of exciting vomiting, I would not recommend their employment. When spontaneous vomiting takes place during labour, it in many instances accelerates the process without producing any bad effects; but were vomiting excited by emetics, where operation is generally very violent, such would not in all probability be the case. I think, therefore, hippo in the form of enema possesses the advantage, not only of relaxing the orifice of the womb, but also that of increasing its propelling powers, and all this is accomplished without the production of vomiting, or any other effects that could endanger the safety of the mother or child.

All the saline purgatives when dissolved in warm water, and employed in the form of enema, at a suitable temperature, have a good effect in relaxing the orifice of the womb, and this is the case independently of their laxative properties. After the bowels have been therefore completely opened, a solution of any of the common saline purgatives may still be repeated in the form of an enema, at short intervals, until the desired effect is produced. Tedious labour from weak or irregular action of the uterus may depend upon a very great variety of causes, some of which may reside in that organ itself, and others in the system at large. It is no matter whether the causes of weak or irregular action of the womb be of a general or local nature, it requires that they should be removed as soon as possible, in order that exhaustion of the expelling powers may not be the result of long-continued action. The means which have been employed for the purpose of keeping up or establishing uterine action, have been very various, and some of them either possessed of very little advantage or useless altogether. I think that remedies administered in the form of enemata are far more profitable for the purpose of keeping up or exciting the action of the womb, than in any other form with which I am acquainted. This is owing, as I have already stated in another part of this paper, to the close connexion that subsists between the lower intestines and the womb.

The effects of common salt dissolved in water, and used at a pretty high temperature, as an enema, are certainly most powerful in all cases where the uterus acts only in a feeble or irregular manner. The expulsion of the child in labour is partly accomplished by the contractions of the womb, and partly by the contraction of the abdominal muscles, and diaphragm. It sometimes happens that the contractile powers of these different parts bear no proportion to each other, so that they may either be singly or conjointly in fault. I have, for instance, in very many cases found the uterus acting with the greatest regularity, while the diaphragm and abdominal muscles were scarcely



affording any assistance at all ; and again, I have found the two last mentioned parts acting with great energy, while the first was only acting in the most feeble manner. Although, therefore, the uterus be the most powerful agent in the process of parturition, yet the assistance which is afforded by other organs is not to be looked upon as a thing of little value. It is better, when using remedies for the purpose of rousing the action of the organ in question, that they should be also calculated to excite an increase of action in all these parts which cooperate with it in the expulsion of the child. Medicines, therefore, that produce a certain action on the nerves of the rectum, have the effect not only of increasing the action of the womb, but also that of the abdominal muscles and diaphragm. After the bowels have been completely opened, enemas of a solution of common salt in warm water produce a degree of tenesmus, or strong efforts to bear down on the part of the diaphragm and abdominal muscles, and also excite, by their stimulating operation on the womb, an increase of its energy. I never neglect, in any case of lingering labour, after the bowels have been well cleared out, to try the effect of the enema I have just mentioned, and it is very seldom, when the delay arises from weak or irregular uterine action, that it does not prove decidedly useful, if repeated at short intervals, until some degree of tenesmus be produced. When about five grains of aloes are dissolved in the solution of salt, the effect produced on the womb, and also on the other parts by means of which it is assisted in the expulsion of the child, is certainly much more powerful. The addition of a very small quantity of senna to the salt produces nearly the same effect as the aloes. The quantity of salt in each enema may vary from one to two table spoonful. There cannot be the least doubt that the warm water in which the salt is dissolved, has a powerfully stimulating effect on the womb, when applied at the inner surface of the large intestines ; so that this medicine, either alone or in combination with small quantities of aloes or senna, is not to be considered the sole agent, but merely the

most powerful auxiliary in these enemas, for increasing the uterine energy. The stimulating effects of the warm water will be, of course, in proportion to the temperature at which it is employed. If the heat be below 90 of Fah. thermometer, there will be no effect, or almost none; but if, on the contrary, it be above the heat of the blood a few degrees, the stimulating effects communicated to the womb will be very considerable; and hence the success of the injections which I have been considering, will vary according to the temperature at which they are employed. In the use of any kind of enemas for the purpose of rousing the contractile powers of the womb, there will be very little benefit produced, unless the fluid thrown up be projected with considerable force, and also be in such quantity as to occasion considerable distension of the rectum. The ordinary way of administering enemas must be, in most instances, almost quite useless; but this is more particularly the case in the country, where it is very rare to find any other apparatus for that purpose, except the bag and pipe. The enema apparatus which I use, and which I consider altogether the best, is a syringe, capable of containing between a pint and quart of fluid. An apparatus of this kind, which only contains five or six ounces of fluid, is very objectionable, on account of the necessity there is of withdrawing it several times before a sufficient quantity can be thrown up.

Weak uterine action being very frequently accompanied with general debility, it is in many instances not only necessary to employ remedies which will have a local but also a general stimulating effect. No matter how useful the improvement of the general tone of the system would be to accomplish the expulsion of the child, still it is a thing that cannot be effected by the means which have been very generally in use, without considerable danger. The use of stimulating cordials by the mouth, such as warm punch, negus, &c., may, in many cases, rouse the action of the womb, and improve the tone of the entire system, without any secondary bad effects; but it will be

found again in a great many other cases, that the use of such cordials will have the effect of exciting either febrile or inflammatory action after the birth of the child; so that by the employment of these remedies, while there is a certain amount of good effected on the one hand, there is a proportionate degree of injury produced on the other. If the employment of stimulating cordials such as I have been considering, were not attended with any risk after the birth of the child, still I think they would be found in the great majority of cases to do far more harm than good, but more especially when the womb is the part which is, from its weakness, the cause of delay in the expulsion of the child. I have witnessed, frequently, from the use of warm, stimulating cordials, a complete suspension of the action of the organ in question, instead of an increase or removal of its contractile powers. While the pains of labour continue, there must be a far more than ordinary proportion of nervous energy distributed to the uterus, and hence anything that makes a powerful impression on other parts of the body, but more particularly the stomach, will be likely to derange that organ. It is therefore not at all wonderful, that the large cordial draughts which are very frequently taken for the purpose of rousing the uterus to more regular or powerful contractions, will have, in many cases, the very opposite effect, of diminishing the regularity, or weakening the strength of the pains. In the practice of midwifery amongst the poor, whose habits are generally intemperate, the use of ardent spirits in different forms is very common during labour, and for one case in which it accelerates that process, there are three in which it retards it. When a cordial is given with a view of improving the strength of labour pains, it should never be in such a dose as would produce a powerful impression on the stomach, and thus endanger the regularity of the process it is exhibited for the purpose of improving. If, previous to the accession of labour, the system has been brought, from any cause, into a general state of debility, there will necessarily be a great want

of power on the part of the womb, and in all probability also on the part of the diaphragm and abdominal muscles, so that the employment of some cordial may be not only useful, but absolutely requisite. I have, in several cases of lingering labour proceeding from general debility, given a glassful of port wine every two hours, until the desired effect was produced ; and have in no instance found it necessary to exceed twelve such doses until the pains became of a sufficient degree of strength. Although cordials are therefore very far from being profitable in most cases of tedious labour, yet still there are some instances in which they are safe, and at the same time absolutely necessary. When they are requisite to hasten the expulsion of the child, it is on account of a state of general debility, in which the womb only participates, as every other organ of the body.

The form of enema is the only safe mode of using internal stimulants, for the purpose of rousing the action of the womb, without producing any bad effects on the system in general, so as to favour inflammatory, or any other morbid action after the birth of the child. An enema composed of a wine glassful of proof spirits, and a pint of warm water, will excite the womb to increased action, while almost no derangement of the general system will be occasioned by its employment. I have in several cases, where the action of the uterus was very slow, and where the pains were very feeble, ordered an enema, of the strength I have just mentioned, to be thrown up every half hour, until the desired effect was produced. In this way, in some instances, eight or twelve ounces of the spirits have been used in the course of a very few hours, and none of the patients in whom it was used exhibited any of those constitutional effects, which it usually occasions when taken even in very small quantities by the mouth. By combining a wine glassful of spirits with a pint of warm water, and using it as an enema, it will in very few instances be retained longer than ten or fifteen minutes, and in proportion to the number of times it has been repeated, the period of its retention will be diminished. Instead of



proof spirits, I have tried, in a few cases, the stimulating effects of enemata composed of a drachm of aqua ammonia to a pint of warm water, and I think in every instance the result was not promising. The ammonia would in fact appear to me, if I might judge from the few cases in which I employed it, far more powerful than the spirits, although it was always retained a much shorter time.

The use of anodynes, I have every reason to believe, is as injurious in tedious labour, from weak or irregular action of the womb, as when the delay arises from rigidity of its orifice, and I have in many instances regretted much the employment of such remedies for the purpose of suspending the pains of labour, and of thus giving the womb, and also the rest of the body, time to recover their weakened powers. I do not therefore think, that the very general idea that prevails, respecting the advantages of remedies, calculated to suspend the pains of labour for a time, in order that their strength and regularity may be afterwards improved, is at all a good one. If any thing at all could justify the employment of anodynes, in lingering labour proceeding from a want of regular uterine action, I think it would be the advantages of sleep. No one could question the propriety of procuring as much repose as possible in cases where the action of the womb is either weak or irregular, provided that could be effected without any risk of weakening or suspending altogether that action, which it is the duty of the accoucheur to increase, when it is defective to the necessary extent. The use of opium, which is the only remedy of an anodyne nature that can be trusted for the purpose of procuring sleep, and of suspending the pains of labour, is, like cordials, very dangerous after the birth of the child, for the production of inflammation or fever. I have tried the anodyne effects of hyosciamus in many cases, but I never found it in any one instance answer the purpose, no matter whether the object was to procure sleep, or quiet the action of the womb.

Nothing has altogether a more beneficial effect in keeping up the pains of labour, than a cheerful state of the mind, and hence every thing that produces mental disquietude becomes a cause of tedious labour. While therefore certain physical impressions should be guarded against as causes of lingering labour, mental impressions should not be overlooked. Every one who has been engaged for some years in the practice of midwifery, must have witnessed many instances where the slightest mental emotions produced a complete suspension of the pains of labour. Any thing therefore that can possibly produce mental disquietude, should be avoided as far as the circumstances of the case will admit. In some females who are of a hysterical temperament, it is impossible, no matter what care be taken on the part of the attendants, to avoid all conversation of a gloomy kind, still the mind will be filled with a number of imaginary dangers. The nervous system, in the great majority of females, is far more easily affected with external impressions during parturition, than at any other time, and hence a word or a look, that would scarcely arrest the attention in any other state of suffering, would during labour give rise to the most dangerous consequences. The frightful stories which it is the delight of almost all nurses to relate, are productive of far more harm than is generally supposed. I have known more than one case, where the imprudent conversation of a nurse give rise to an almost complete suspension of the uterine action, notwithstanding that the labour had been going on for some time before the conversation took place in the most regular manner. It is therefore absolutely necessary, in all cases, to prevent as far as possible every kind of mental impressions of a depressing nature, and at the same time, it is well to inspire the female with as much confidence, as the nature of her case will warrant. It is in fact no great matter, whether the action of the womb during parturition be interrupted by fear, sedatives, or any other cause, when it is interrupted at all. I am therefore decidedly of opinion, that fear, from a

great many different causes, has altogether a far greater influence over the parturient process than is generally supposed, and although this particularly is the case amongst the rich, still it is extended in a greater or less degree to females of every rank in society.

The position of the body has unquestionably a very considerable effect in either increasing or diminishing the pains of labour. During a very considerable portion of the first stage, or until the orifice of the womb has been to a certain extent dilated, the female should be kept as much as possible in an erect or kneeling posture. I say an erect or kneeling posture, because it is impossible for a female to remain in the erect position during the pains, but more particularly when they are strong, and have been going on a considerable length of time. Although I think as much motion as possible should be made during a considerable portion of the first stage of labour, still the greatest care should be taken that such exercise does not produce too much debility, and thus become a cause of delay instead of a means of accelerating it. I am quite satisfied that exercise, although favourable when carried a certain length, yet when taken beyond what the powers of the system can sustain, becomes a cause of delay in the expulsion of the child in far more cases than it is generally supposed.

Of late years, the ergot of rye has claimed a greater share of attention than any other remedy, for the purpose of rousing the action of the uterus in cases of tedious labour, from the want of regular or strong labour pains; there was for a considerable time after this remedy was brought into pretty general use for the purpose of increasing the pains of labour, very great diversity of opinion amongst accoucheurs respecting its advantages, and notwithstanding that this has not as yet altogether subsided, yet it is becoming less and less every day. I have tried the ergot altogether in fifty cases of tedious labour, in which every circumstance was favourable for its employment, and I found in thirty-four out of fifty, that it had the effect of improving the pains

both in frequency and in strength. When it was given by the mouth, it was mostly in the form of decoction or infusion, but never in that of powder. From the trials I have made of the ergot in the form of decoction and infusion, I would decidedly prefer the former to the latter. It is not as yet known to what principle this remedy owes its active properties; there is one thing however certain, that it requires to be boiled for some minutes, after being reduced to the state of fine powder, before that principle can be completely extracted. When it is, therefore, used for the purpose of rousing the action of the uterus, it will either succeed or fail in accomplishing that object, according to the manner in which it is employed; this is at least the case, provided all other things be equal. The average dose of this remedy, which would appear to me to be the most successful, is about thirty-five grains of the fine powder, boiled in about half a pint of water for some minutes. I have always found it most active when dissolved in a pretty large quantity of water, and when given while the decoction was at a high temperature. If the decoction or infusion be given when it is at a low temperature, it will be a considerable time after it is administered before it produces any effect, and when it does, it will be so slight in many instances, that it can scarcely be said to do much good. I think that many of the failures of the ergot arises not from any want of a sufficient dose, but from want of its being administered in a suitable form. From the number of cases in which I have tried the efficacy of the remedy in question, in order to expedite labour, I think I cannot possibly be deceived relative to its advantages; but, at the same time, I am sorry that it will not be found by any means so generally successful as one would be led to suppose, on reading the accounts which are given by some accoucheurs of its advantages in almost every instance. I think the ergot, if even successful in two-thirds of those cases in which it is administered, is to be viewed in the light of a specific for the excitement of uterine action. No remedy, I care not for what disease it be em-



ployed, will uniformly prove successful ; and it is only in a considerable portion of cases that any medicine can possibly be expected to succeed. This medicine, I am satisfied, is much more certain in its operation when the decoction is employed in the form of enema, either by itself or in combination with common salt. The last mentioned substance is unquestionably a most important addition to the ergot, and one that should never be omitted, no matter whether the bowels be in a constipated state or not. The reason why it is a more certain remedy, when given in the form of enema than when administered by the mouth, is, I have no doubt, as has been already stated, owing to a much more intimate connexion subsisting between the uterus and the rectum, than between the uterus and the stomach. While the accoucheur is endeavouring to rouse the womb, he should, at the same time, try to excite every part into more powerful action, that can aid, in any way, the expelling powers of that organ. The ergot when, therefore, given in the form of enema, has the effect of exciting the diaphragm and abdominal muscles into powerful action, and of thus rendering the contractions of the womb more efficient.

I have in some instances combined with the substance in question a small quantity of hippo, and I am quite satisfied that the exciting effect was altogether much improved. When the decoction of ergot is used as an enema, without any addition, it should be pretty strong ; but if either common salt or hippo be added, it will succeed in a great proportion of cases, although it be very weak. For the simple decoction, one drachm may be boiled in a quart of water for fifteen minutes, and when it has cooled down to the temperature of about 104 Fah. it may be used. I think never more than half a pint should be thrown up at a time, although it should be repeated in that quantity every fifteen or twenty minutes, until the whole is employed, or else until the desired effect is produced.

In comparing the effects of different remedies for the purpose of increasing the action of the womb, I am of opinion that

many of those which I have mentioned in the foregoing observations, and which are very little in use, are more certain in their operation than others which enjoy the greatest fame. For instance, the ergot of rye, which is now very generally esteemed a specific, is not by any means possessed of the same advantages, I care not how it is administered, as a solution of common salt or hippo, either alone or combined together in the form of enema. I have succeeded in rousing the action of the womb in cases of tedious labour with common salt, when used in the manner I stated in a foregoing part of this paper, in a far greater proportion of cases than with the ergot of rye, which has acquired such celebrity.

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ART. III.—*Researches on Laennec's Vesicular Emphysema, with Observations on Paralysis of the Intercostal Muscles and Diaphragm, considered as a new Source of Diagnosis.*  
By WILLIAM STOKES, M.D., M.R.I.A., one of the Physicians to the Meath Hospital, &c.

IN this communication I shall first consider the disease of dilatation of the air cells, and I trust to be able to establish the true principles of its diagnosis, and add some important signs to those already given by Laennec. On the symptoms and history I have but little to observe, and shall therefore only allude to them as bearing on the physical signs.

The following are the sources of the physical signs in this affection :

- 1st. The increased quantity of air within the thorax.
- 2d. The increased volume of the lung, and the resistance of the thoracic parietes.
- 3d. The displacement of the heart and abdominal viscera.
- 4th. Bronchitis of the minute tubes.
- 5th. Congestion of the lung.
- 6th. The existence of the sub-pleural vesicles of Laennec.

On percussing the chest, in a case where the disease is decided, we observe that the sound is morbidly clear. It is not, however, tympanitic, as in pneumo-thorax, but may be described as the maximum of the true pulmonary sound. In a case of extensive disease this clearness is general, but it may be partial, and merely correspond to the most affected portion of the lung. It is but little, if at all, increased on a deep inspiration, in which it differs remarkably from the sound of the healthy lung, but agrees with that of its solidified state. In fact, this character, though occurring in states of the lung so opposite as its rarefaction and solidification, is yet owing to the same cause in both, namely, the greatly diminished volume of air which can enter at an inspiration.

We may further observe, that the sound on percussion is often clear down to the lowest portion of the thorax. The natural hepatic dulness of the postero-inferior portion of the right side disappears, and unless where the heart is much enlarged, the sound of the cardiac region is remarkably clear. This will be particularly the case if the lung overlaps the pericardium to any extent, of which we can easily satisfy ourselves by means of the stethoscope.

But in almost all cases of such extensive disease, we find a complication with enlargement of the heart, the result of the long-continued and increasing obstruction to the pulmonary circulation, and this will give an increase of dulness over the organ, particularly at its right side. We then find that there is dulness from the situation of the apex of the left ventricle as far as the right side of the sternum; and as Piorry has remarked, the extent of this dulness may be found to vary according to the degree of pulmonary obstruction. This is the most common case; but in a few instances, even though the enlargement of the heart be considerable, we find in these regions a clear sound on percussion, or, at all events, a want of dulness commensurate with the heart disease, a circumstance explicable by the increased volume of the lung, which by

throwing the parietes forwards, buries the heart in the thoracic cavity. In such cases the impulse of the organ ceases to be a measure of its disease, and we are surprized at finding an hypertrophied heart, although, during life, the impulse at the side and lower sternal regions had been slight. As a general rule we may state, that where this complication exists with a distinct impulse, the sound on percussion of the cardiac region, will be dull.

But the morbid clearness of the chest is not met with in all stages of the disease ; it is only observed when the affection has arrived to an advanced degree, and may be altogether wanting in the earlier periods. A patient may have a degree of dilatation of the air cells sufficient to give decided feebleness of respiration, without any perceptible increase in the clearness of sound. Of this I saw a remarkable instance in a patient who was admitted into my wards, and who presented a group of symptoms and signs which led me to suspect the existence of an aneurism of the aorta ; his complaints had been of about five months' standing, up to which time he had enjoyed good health ; he then contracted cough, followed by severe dyspnœa on exercise, and some pain in the back and upper portion of the chest. We found that both sides sounded equally upon percussion, nor was the sound at all morbidly clear. The respiration in the right lung was puerile, while in the upper portion of the left it was exceedingly feeble. The impulse and sound of the heart, as observed below the mamma, seemed natural, but a double pulsation could be heard at the upper portion of the left side : there was no bruit de soufflet, dysphagia, or laryngeal breathing.

Here was a group of symptoms and signs, which I thought might possibly depend upon a small aneurismal tumour, compressing the left bronchus. But I made no positive diagnosis in the case. The patient sometime afterwards died with effusion into the chest ; and on dissection it was found that there was no aneurism, but that partial dilatation of the air cells



existed, affecting only the upper portion of the left lung, and that the right cavities of the heart were dilated and somewhat hypertrophied. The feebleness of respiration was clearly attributable to the dilatation of the air cells ; and the case shews, that this lesion may exist to such a degree *as to give distinct stethoscopic signs, although the sound on percussion be not perceptibly increased.* In other cases too I have found on dissection, dilatation of the air cells to some extent, although during life percussion gave no unusual results.

I now proceed to consider the remaining sources of physical signs in this disease, or those which are the principal causes of the active auscultatory phenomena. I shall, in the first place, dwell on the increased volume of the lung, and consider it first in relation to the stethoscopic signs, and next, as causing displacement of adjacent parts. And we shall inquire how far the degree of resistance afforded by the thoracic parietes tends to influence both the auscultatory signs, and those more obvious ones, which proceed from the displacement of surrounding organs.

The modifications of the sounds of respiration in this disease depend on the following causes :

1st. The increased volume of the lung.

2d. The existence of bronchitis, principally affecting the minute tubes, and often complicated with congestion of the lung.

3d. The formation of the sub-pleural vesicles.

The first of these sources of modification of the respiratory phenomena being the most important in diagnosis, I shall dwell particularly upon it.

One of the first circumstances which strikes the observer in this affection, is the want of accordance between the inspiratory efforts, and the sound of pulmonary expansion ; the first being evidently excessive, and the latter extremely feeble. When he employs percussion he will at once discover that the cause of this feebleness cannot be any solidification of the lung, as the

sound is either natural, or clearer than natural, and under these circumstances he must seek for some other cause to explain the phenomenon. It appears to me, that in the increased volume of the lung he will find the cause of this important sign: for the organ being in a permanent state of enlargement, *the dilatation of the chest can be but little added to by the inspiratory effort, and hence the sound of respiration becomes proportionably feeble.* Hence this feebleness of respiration, coinciding with clearness of the chest and increase of the inspiratory efforts, becomes the most important physical sign of the disease in question. Other causes, however, have been enumerated, particularly the thickening of the mucous membrane, the result of that chronic bronchitis which so constantly attends this affection. Thus Laennec has stated, that in the dry catarrh, which so commonly produces this disease, the mucous membrane of the minuter tubes is often extremely thickened, which, to certain degree, explains the feebleness of respiration, and also the fact, that when we compress the lungs taken from an emphysematous patient, we find greater difficulty in reducing them to their state of flaccidity than if they were in their ordinary condition. In fact, *cæteris paribus*, the sound of respiration is directly as the facility of the entrance of the air, and any mechanical obstruction, whether in the trachea, the larger or the more minute bronchial tubes, will cause a corresponding feebleness of the respiratory murmur. This has been long known; I remember seeing an interesting example of this in a patient whose chest I was requested to examine previous to the performance of tracheotomy. The history of the case was such as might warrant the supposition of the existence of a pulmonary emphysema. On percussion the chest sounded everywhere extremely clear, but the vesicular murmur was feeble, notwithstanding the violent efforts of the patient; yet on the trachea being opened, it became at once loud, even to puerility, and continued with this character for some time after the operation. But without

denying that this thickening has an effect, I cannot help thinking, that we must also attribute much to the increased volume of the lung for the following reasons:

First. In cases of ordinary bronchitis, even when the minute tubes are engaged, this remarkable disproportion between the inspiratory efforts and sound of expansion is either not observed, or occurs in a much smaller degree. In these cases we hear either a mixture of the vesicular murmur with various rales, or observe that the murmur is almost masked by the rales; but in both cases the phenomena indicate full expansion and contraction of the lung, and their intensity can be remarkably modified by the efforts of the patient. Yet in cases of dilatation of the cells this is not observed, and the phenomena are but little modified whether the patient breathes in his ordinary manner, or makes an increased effort at inspiration. In the former case, the air cells may be considered as unaffected, and on the obstruction which results from the thickening of the bronchial membrane, or the presence of secretion in the tubes being overcome, the lung expands, and this expansion is evident to the auscultator.

Secondly. I have observed that in chronic cases of dilatation of the cells, the sign of feebleness of respiration is but little affected by the increase or diminution of the bronchitis, at least as far as we can judge of the latter by the physical signs and constitutional symptoms. Thus, it not unfrequently happens, that such patients are attacked with exacerbations of the bronchial irritation, which may subside under treatment, but during their continuance the physical signs are less an increase of the feebleness of respiration than of the various rales; and on the other hand, when they subside, that feebleness is scarcely, if at all, diminished: in fact, the sign of feebleness is but little affected by the increase or diminution of the bronchitis, a circumstance quite in accordance with my view of its cause, namely, the diminished quantity of air that enters the affected portion of the lung.

I have already stated, that the feebleness of respiration in this affection is owing to the increased volume of the lung, by which the amount of the inspiration is diminished ; for if the lung be thus hypertrophied, so as to press strongly on the chest, and preserve that cavity distended, even after expiration, it is obvious, that on the next inspiration the volume of air entering will be minus the expanding of the lung from its own distending force.

Let us suppose that the area of the healthy chest, after expiration, to be equal to 10, and the maximum of its expansion to be equal to 15, it is plain, that if from the disease the lung acquires a volume in rest equal to  $12\frac{1}{2}$ , the inspiration would be diminished by one-half ; hence a cause of feebleness of respiration, as part of the inspiratory effort is supplied by the expansion of the lung, which results from its being kept compressed in the state of rest.

It is obvious, however, that the physical signs of the pulmonary compression must vary according to the rigidity of the thoracic walls. If we take two cases of Laennec's emphysema, and suppose that in one the chest yields *pari passu* with the enlargement of the lung, while in another it is rigid and unyielding, it is plain that the physical condition of the lung, and of course the physical signs of its actions, must be different. If the feebleness of respiration depend upon the compression of the lung, it should follow, that if in any case the chest yielded easily and fully to the pulmonary enlargement, we might have great and extensive dilatation of the cells, without the sign which is supposed to be characteristic, so that the feebleness of respiration would seem more a measure of compression of the lung, than a direct sign of dilatation of the cells. Of these views the following case is strongly illustrative, and I place the more value on it as the patient has been at different periods under my observation.

A young man of feeble muscular development, and considerably below the middle size, entered the Meath Hospital,



labouring under the usual symptoms of Laennec's emphysema; the chest was enormously enlarged on both sides, but the principal yielding seemed to have taken place in the upper and anterior portions; the circumference at the mammary regions being three feet and an inch, an increase of at least seven inches above its natural development. The sternum and clavicles were arched, the scapular regions nearly horizontal, and the development of both sides equal. Yet, in this case, the characteristic signs existed only in the supero-anterior portion of the right side, while over the rest of the thorax the respiration could be heard loudly, and after the individual had been treated for bronchitis it was pure. In this case the symptoms had lasted for upwards of five years, and after the second year the enlargement of the chest became so manifest as to excite the attention of all the patient's friends.

Here there was a case in which the yielding of the chest was more remarkable than any we had ever witnessed, and yet over the greater portion of the thorax the respiration was any thing but feeble; and it is a most curious and interesting fact, that with the absence of the signs there was also absence of the symptoms of compression. There was no evidence of disease of the heart; there had never been œdema; the jugular veins were not distended; the liver was not depressed; and the patient, so far from being embarrassed by exercise, was always better after walking a considerable number of miles. A short time before entering the hospital he performed a journey of forty miles on foot in the course of a single day. His only inconvenience was the recurrence of bronchitic attacks, but when these were absent his general health was excellent.

It might here be inquired, what was then the cause of the feebleness of respiration in the anterior portion of the right lung. I think that in all probability there was here rupture of the air cells, and that in this condition we have a cause, in addition to that of compression of the lung, for the ordinary feebleness of respiration.

We shall now consider some of the other physical signs, which result from the enlargement of the lung, and which, like the preceding, vary with the amount of resistance of the thoracic walls.

#### SIGNS CONNECTED WITH THE INTERCOSTAL MUSCLES AND DIAPHRAGM.

The next result of the increased volume of the lung, which we now consider, is its effect in displacing the more yielding parts of the thorax. These may be considered to be the mediastinum, the intercostal muscles, and the diaphragm; and we shall find, that although the mediastinum yields in cases of the disease occurring in a single lung, yet that the muscular expansions exhibit a great power of resistance, and in many cases do not yield, even after the chest has been much enlarged. In this respect we observe a remarkable difference between this disease and empyema, in which the yielding of the muscular expansions forms one of the most important signs.

When we examine the intercostal spaces in this affection, even after great dilatation of the chest has occurred, we see them, so far from being obliterated, deeply marked, and the muscular fibres acting powerfully, so as to elevate the ribs, and assist in the imperfect inspiration. I have never seen an exception to this, and the rule applies to every intercostal space; and as a point of difference between the two diseases of accumulation, empyema, and Laennec's emphysema, it is of the greatest interest. In the second part of this paper I shall point out the causes of this difference, which have not been hitherto understood.

But the same remarks cannot be made with respect to the diaphragm, which, in certain cases, yields before the enlarged lung, so as greatly to increase the cavity of the chest downwards. This circumstance may be taken as a most important distinguishing mark in cases of this disease, which may be divided into those with, and those without, diaphragmatic displacement.

From the position of the muscle, and its inferior mechanical support, we should expect, *a priori*, that it should yield more to mechanical pressure than the intercostals. And such I have ascertained to be the fact, as while I have often seen displacement of the diaphragm, in no case did I find that the intercostals were similarly affected.

Between the two cases of Laennec's emphysema, with and without this displacement, I have observed some striking differences as to symptoms and signs. Of those in which the diaphragm is not affected, we have an excellent example in the case which I have described of great yielding of the thoracic walls. Here the signs of pressure on the lung were much less distinct, and there existed no indication of hepatic displacement, the epigastrium so far from being tumid, being actually collapsed. But in the case with displacement of the diaphragm we observe that there is much more distress in breathing; that the epigastrium is full and resisting, and that the heart is pushed down sometimes so far as to be on a level with the ninth, or even tenth intercostal space.

Under these circumstances the postero-inferior portion of the chest, and the regions of the liver and heart anteriorly, give a perfectly clear sound, which is explicable by the displacement of these viscera, and also by the condition of the lung; and the respiratory phenomena may be heard down to the very last rib posteriorly, and even for two inches below the ensiform cartilage.

When these patients are stripped, and lying on the back, a remarkable character of respiration may be observed. We see the thorax powerfully elevated upwards, and the abdomen as powerfully protruded downwards; but there is this remarkable difference from forced respiration in the healthy state, that the abdominal protrusion does not begin so high, and while the umbilical and hypogastric regions move upwards and forwards, the epigastrium and upper portions of both hypochondria remain comparatively motionless, while the corresponding ribs

are drawn in. This is explicable by the new position of the diaphragm ; it has descended, and carried the abdominal viscera before it ; and its contraction takes effect at a point lower in proportion to its displacement.

That this displacement is a purely mechanical result, and not analogous to that in empyema, shall be shewn hereafter. It varies so remarkably with the volume of the lung, that I have seen the heart, after the subsidence of a bronchitic attack, mount from the tenth to the eighth intercostal space.

On the subject in general, we want some accurate dissections. I regret that my experience is but limited, but I shall state it. It would appear that much will depend on whether the disease predominates in the upper or lower lobes ; if in the latter, the shape of the lung is altered, and I have found in this way, that from the great enlargement of the cells, and the formation of sub-pleural vesicles, the lower surface, from being concave, had become flattened, or even convex. Under these circumstances the diaphragm must of course yield.

In a patient who died in the Meath Hospital, the following appearances were found : the liver was in its natural situation, but the left ala of the diaphragm was pushed far down, so as to become convex towards the abdomen. But a source of fallacy exists in this case, and in all dissections made to clear up this point, it must be borne in mind that the diaphragm may have yielded *post portem*, merely from the pressure which during life it had been able to resist.

Thus we arrive at a division of the cases of Laennec's Emphysema into two classes, namely, those with, and those without diaphragmatic displacement. The distinction between these cases will be best understood by comparing them by pairs of opposite characters.



WITHOUT DISPLACEMENT OF THE DIAPHRAGM.	WITH DISPLACEMENT OF THE DIAPHRAGM.
1. The shoulders greatly elevated, and the upper part of the chest convex.	1. The shoulders not affected, the upper part of the chest flat, and the convexity manifest only in the lower part of the thorax.
2. The sound on percussion of the upper portions morbidly clear, of the lower but little altered.	2. The sound on percussion of the upper portions not affected, of the lower morbidly clear.
3. The stethoscopic signs manifest in the upper portions.	3. These signs predominating in the lower lobes, and audible below the usual level of the diaphragm.
4. The epigastrium collapsed, and the heart and liver in their natural situations.	4. The epigastrium full and resisting; the right hypochondrium dull on percussion, and the heart displaced downwards.
5. The distress in breathing much less, except during an exacerbation of bronchitis.	5. The dyspnoea much more permanent, and less affected by treatment calculated to relieve bronchitis.

I need hardly remark, that we cannot observe these differences in all cases, inasmuch as the whole lung may be engaged so as to present the phenomena of enlargement in every direction; still the distinction may be often made. The greater dyspnoea and liability to morbus cordis, when the disease predominates in the lower lobes, is traceable to the fact that the patient is deprived, in a great measure, of the powerful assistance of the diaphragm in inspiration.

#### SIGNS FROM THE DISPLACEMENT OF THE MEDIASTINUM.

In considering these signs we find, that although they may exist so as to be demonstrable during life, yet that they are less remarkable than those in empyema. In certain cases where

the disease is confined to one lung, the morbid signs extend across the mesian line to a distance proportioned to the extent of the disease; and as in empyema we have dulness and absence of respiration extending across the mesian line *from disease of one pleura*, so in the dilatation of the air cells we have the morbid clearness and characteristic respiration, under the same circumstances; and if any thing was wanting to complete the analogy, it is, that the displacement of the mediastinum can be observed to vary with the state of disease in either case.

Thus, when the dilatation of the cells is confined altogether, or nearly so, to one lung, percussion gives a peculiarly clear sound over the affected side; and if the disease has displaced the mediastinum this clearness will be found across the whole sternum, and it may be for an inch or so beyond it. This line, which is well defined, having been passed, we then observe the natural pulmonary sound, which an experienced ear will have no difficulty in distinguishing from that of the diseased lung. If the observer now applies the stethoscope over the affected side, and carries the instrument across the chest, he will find that the peculiar phenomena of respiration do not disappear until he passes the sterno-costal articulations of the opposite side, where, like the clearness on percussion, they suddenly cease, and are replaced by the natural respiratory murmur.

I must state here, that although we should expect *a priori* that these signs always exist in the advanced stages of the disease, when confined to one lung, yet that I have only verified them in a few instances, and that additional observations will be necessary to ascertain their exact value or constancy. I have little doubt, however, from the analogy of the disease in question with empyema, that they will be found to occur in all cases of confirmed dilatation of the cells, when the disease occupies but a single lung.

But although in both instances the mediastinum be displaced, yet in the disease before us the change is seldom seen

in so striking a manner as in empyema. One reason for this may be the fact, that in most cases of decided dilatation of the cells, the disease exists in both lungs, while double empyema is one of the rarest of diseases. Another will be admitted when we recollect, that the inflammatory action of pleuritis, by softening the serous membranes, will render them more likely to yield in that disease than in Laennec's emphysema, where no such action exists.

The heart, of course, will follow the displaced mediastinum, and its position vary with the affected lung and the amount of disease. My experience, however, leads to the conclusion, that in this affection lateral displacement of the heart is rarely seen to any remarkable degree, another circumstance of difference between this affection and empyema, and to be explained by the preceding considerations. This remark, however, does not apply so much to the displacement downwards, which, as I have shewn, may occur to a very great extent. Under these circumstances the præcordial region is clear on percussion, and the impulse of the heart may be altogether wanting in its natural position, but occur as low down as the tenth rib, and between the costal cartilages and mesian line.

It is now admitted that most of the patients affected with this disease die with symptoms of morbus cordis and general dropsy, and it is not difficult to understand why disease of the heart should be so common a complication. The cause of this seems to reside almost altogether in the great enlargement of the lung, which must have a deleterious effect upon the heart in the following respects.

First, as I have already shewn by its interference with the process of inspiration. The experiments of modern physiologists have shewn the great influence which is exercised by the respiratory process on the venous circulation; but in the disease before us we find the chest in a state of permanent dilatation, to which the inspiratory effort can add but little, the manifest consequences of which must be an accumulation of

blood at the right side of the heart, and consequent disease of its pulmonary cavities. The vena cava becomes loaded, the hepatic veins engorged, and the liver consecutively engaged. Under these circumstances the muscular parietes of the heart become hypertrophied, and active aneurism of the auricle and ventricle is produced.

Secondly, it seems more than probable that the same pressure which has distended the chest and displaced the diaphragm must act directly in impeding the circulation through the pulmonary artery and its ramifications, and thus we see an additional cause for the production of hypertrophy of the right cavities of the heart.

Lastly, we must recollect that the heart itself is under the influence of anormal pressure. It is removed from its natural situation, and to a certain degree deprived of its natural protection by the bony and elastic parietes of the chest, and is compressed between the distended lung, on the one hand, and the distended abdomen on the other. Under these circumstances its actions of dilatation and contraction must be materially interfered with, the auricles will experience a powerful impediment in filling the ventricles; and if these cavities have an active power of dilatation, this must also be materially impeded. Thus, many circumstances concur to derange the pulmonary, cardiac, venous, and hepatic circulation. And we can only wonder at the powers of nature in prolonging life under such a complication of evils. In the great majority of cases such patients die with symptoms of what is commonly called hydrothorax, to the disappointment of the practitioner, who prescribes according to the rules of the nosological writers, and a *post mortem* examination reveals the causes of his failure, and the error of his teachers.

#### SIGNS FROM THE EXISTENCE OF BRONCHITIS.

On the subject of the signs manifestly proceeding from bronchial irritation I have to remark, that there is not one of



them which can be considered as pathognomonic of the complication with dilated or ruptured air cells, inasmuch as we may find them all in cases where no such affection exists. None of them are constant; and when they do occur, scarcely differ from what is observed in simple bronchitis: we may have all varieties of the sonorous, sibilous, mucous, and muco-crepitating rales in this affection, and the occurrence and mode of combination of the phenomena are infinitely various. The two most common are, the dry sibilous, and a diffuse mucous rale. Laennec has stated that there is one form of rale which is pathognomonic of the interlobular emphysema, although it may also occur in the simple dilatation; this he calls the *dry crepitating rale with large bubbles*, and describes it as conveying the impression of air entering and distending lungs which had been dried, and of which the cells had been unequally dilated. He compares it to the sound produced by blowing into a dry bladder, and states farther, that it is similar to that observed in common sub-cutaneous emphysema when we press the stethoscope on the affected portion. Now, without at all calling in question the extraordinary tact of Laennec, I would say, that this is a sign, which, if it does exist, must be so easily confounded with other phenomena, such as those proceeding from bronchitis, that an ordinary observer would not be safe in founding a diagnosis on its supposed existence. I have never been able to satisfy myself that I had recognized it, and have even found the interlobular emphysema in the lungs of persons, in whom during life I was not able to distinguish the rales from those of simple catarrh. He states, however, that the phenomenon is not common, and when it exists is of short duration, and observed in points of only small extent. On this subject further observations are necessary.

I shall lastly allude to the sign of the rubbing sound, or *frottement*, which has been described by Laennec as an indication of those sub-pleural air vesicles which occur in the interlobular emphysema, and which, according to him, when oc-

currence with the other symptoms of dilated cells, may be looked on as diagnostic of the lesion in question. But this point of diagnosis requires still further investigation ; and indeed it seems difficult to understand how the existence of an air vesicle could give rise to the rubbing sound. We know that in the healthy condition of the internal surfaces of serous membranes, the friction of their opposite faces is so diminished by their smoothness, and their being lubricated by the serous exhalation, that no perceptible sound accompanies their motions. It is only when the surfaces are rendered dry by an arrest of secretion, or roughened by the effusion of lymph, that their motions produce sounds perceptible to the ear. Now, even where extensive vesicles exist, we commonly find that the serous surface, as far as smoothness and lubrication are concerned, continues in its natural state ; and I cannot help agreeing with Meriadec Laennec, that the sign of frottement is to be looked on more as an indication of slight pleurisy than of these sub-pleural vesicles. I have never observed this phenomenon unless in cases where the serous surface was roughened ; and as it is admitted, both by the above author and by M. Reynaud, that the sound in pleurisy is undistinguishable from that described by Laennec in this disease, we have, I think, sufficient reasons for extreme caution in the diagnosis of sub-pleural vesicles from the existence of the sign in question.

It might be supposed that the permanence of the sign and the absence of pain would prove diagnostic marks, but the truth is, that even these circumstances will not be sufficient. Thus I have seen cases in which the frottement of pleuritis continued for a month with scarcely any alteration, and in which, after the first week, the patient felt no pain, and only complained of the rubbing sensation produced during respiration.

Before leaving this subject I shall describe another sign which promises to be of some importance in diagnosis. It

is founded on the difficulty of expiration which occurs in this disease, a difficulty by some attributed to the obstruction of the minute bronchial tubes, and more lately by Magendie to the diminished elasticity of the lung itself.

I have at present under my care, a patient aged upwards of sixteen years, who has been subject to cough and dyspnœa from infancy. The right side is enlarged, and very convex anteriorly, the sternum somewhat arched, and the clavicle elevated. Over this side the sound is morbidly clear on percussion, and the clearness extends across the sternum; yet on applying the stethoscope during ordinary respiration, nothing is heard but a muco-crepitating rale, occasionally combined with Laennec's *rale crepitant à grosses bulles*; these signs are audible during inspiration, while expiration is marked by a dry, prolonged wheeze. On a forced inspiration, however, a distinct sound of pure pulmonary expansion follows the rales above-mentioned.

From these observations I concluded that the case was one of Laennec's emphysema, which had not yet arrived at its most extreme stage, inasmuch as that by a forced inspiration the lung could be still considerably distended. It then struck me that by making the patient perform a number of forced inspirations rapidly, the lung might be so far distended with air as to prevent the occurrence of any natural sound of pulmonary expansion for a time, and that thus we might obtain a direct proof of the difficulty of expiration. This experiment I put into effect, and found that after four or five inspirations, rapidly performed, the respiratory murmur altogether disappeared, nothing being heard but the crepitating rales, and even these in a diminished degree. The patient was now allowed to rest and to breathe naturally for a certain number of times, when on the experiment being repeated, the first inspiration was distinctly followed by the murmur, which, however, diminished at each successive effort, until at length it became extinct as before.

The results of this experiment are easily explained by referring to the difficulty of expiration, proceeding from either or both of the causes already alluded to. In fact, the repetition of the inspiratory efforts caused such an accumulation of air in the diseased portion of the lung, as ultimately to nearly prevent its further expansion, and thus hinder the sound of the respiratory murmur. But on the cessation of these efforts, the air was gradually evacuated, and the lung restored to its original condition. If this sign be found constant, it will be a most valuable addition to our means of detecting the emphysema of Laennec, but the frequent repetition of the experiment must be avoided.

#### TREATMENT OF DILATATION OF THE CELLS.

But as the end of all diagnosis is treatment, we may now inquire whether or how far this is a curable disease.

Can we expect, after the disease is established, that the dilated air cells can ever resume their natural condition? Now we find that some patients have laboured under this disease, or its causes, from infancy, while in others it is brought on by bronchitis at a late period of their lives, and after many years of previous health. In the first case, it seems scarcely possible that any effort of medical skill can restore the lung to its original condition, and all that we can hope for is to palliate the symptoms. But in cases of a comparatively recent origin, to give up all hope of cure seems scarcely in accordance with our knowledge of analogous affections. We may consider the pathological condition of the air cells in the same point of view that we look upon chronic dilatations of other hollow organs, such as those of the stomach, colon, bladder, and heart. In these cases we commonly observe the two following circumstances to occur: first, that the cause of the dilatation is some mechanical obstruction to the exit of their natural contents; and next, that if this obstruction be long continued,



what was first a mere dilatation or extension of the organ becomes a combination of this with an organic alteration of the parietes, which is, in most cases, an increase in their thickness and strength. Hence the hypertrophy of the tunics of the stomach when the pylorus is affected ; of the bladder when the urethra or prostate are diseased ; of the colon in stricture of the rectum ; and of the right cavities of the heart in affections of the lung. This change from mere dilatation to increase of growth seems to be a condition very unfavourable for cure, and the chances of its production may be stated to be directly as the length of time the obstruction is allowed to continue ; for we know that in the earlier periods of these mechanical dilatations, the removal of the obstruction is often followed by the return of the cavity to its natural dimensions. Applying these considerations to the case of dilatation of the air cells, it seems not impossible that in the earlier periods the removal of the obstruction would be followed by a subsidence of the disease ; for when we inquire into the causes of the affection, we find these to be principally obstructions to the free exit of the contents of the cavities ; the viscid mucus and the turgescence of the bronchial tubes being to the air cells what pulmonary obstruction is to the heart, or urethral to the bladder ; and the distention in these cases being perfectly analogous.

We may then admit that where actual change of structure has not occurred, a cure, or a great alleviation of the disease, is not impossible. Our next inquiry is, whether there is evidence of such ever occurring. On this question Laennec speaks doubtingly. After alluding to the combination of extravasation of air with dilatation of the air cells, he observes, that it is of slight consequence as compared with the latter affection, as we can hope for its removal by absorption as in other similar cases, whilst we cannot well see in what manner either nature or art can remedy the other morbid derangement. "At the same time," he continues, "I do not think we are

justified in considering this affection as altogether incurable. In several instances I have fancied that I discovered the traces of cicatrization of ruptures of the pulmonary tissue of the kind above described. In the case of subjects affected with asthma I have several times, during the fits, detected a crepitous ronchus with large bubbles, which ronchus entirely disappeared afterwards; and it is quite intelligible, that if we can diminish the intensity of the cause which keeps up the habitual distention of the cells, we may in the end hope, that these will be actually lessened in volume." The same author, when describing the treatment of dry catarrh by alkalies, states, that many persons who had already emphysema of the lungs, and either incessant dyspnoea, or very frequent fits of asthma, have been restored by this treatment to a state of health so comfortable, that they hardly exhibited any signs of disease.

The question as to the curability of Laennec's emphysema has been scarcely agitated in medical circles; and Dr. Osborne deserves great credit for bringing this subject forward in his lately published brochure on the pathology and treatment of dropsy, in which he states his conviction, that this disease is at all events susceptible of great amelioration, on the ground that in certain cases he observed the feebleness of respiration, and morbid clearness of sound, to subside, or become greatly diminished, after treatment calculated to remove the obstruction, and diminish the frequency and violence of cough. On this subject I can only bring forward the observations of a few cases, but which, as far as they go, are of great importance in elucidating the question. In the patient, to whose case I have already alluded as illustrative of the diagnosis from mediastinal displacement, I found after certain treatment, calculated to relieve bronchial irritation and diminish cough, that coincident with great relief of symptoms, the following changes in the physical signs took place: first, that the morbid clearness of the affected side,

though not removed, was diminished, and that it terminated at the mesian line in place of extending, as before, beyond the opposite side of the sternum. Secondly, that the rales became more humid and larger, and the vesicular respiration was manifestly increased. And thirdly, that the stethoscopic phenomena, like those of percussion, ceased to be heard beyond the mesian line of the sternum, when they had been before audible, and that in this situation they were replaced by the healthy murmur of the opposite lung. These alterations in the signs, so characteristic of diminution in the obstruction and volume of the affected lung, were accompanied by the most marked improvement in the symptoms; the cough, dyspnœa, and acceleration of breathing being wonderfully diminished, and the condition of the patient in every respect improved.

The treatment pursued was the employment of local bleeding and counter-irritation, with the exhibition of the tartar emetic for several days, followed by sedative and demulcent remedies.

That in this case the volume of the affected lung was reduced by treatment, there can be no doubt; and when we connect the results of the case with those obtained by Dr. Osborne, and with the observations of Laennec on the treatment of dry catarrh, we have decided evidence in favour of the possibility of the diminution of the disease, and are consequently justified in considering it as not altogether incurable. In another instance I have seen the heart, which was so much displaced downwards as to pulsate at the cartilage of the tenth rib, after a few days of treatment, remount towards the thorax, and correspond to the eighth intercostal space.

Some important questions here arise. Is the mere diminution or even removal of the obstruction all that is necessary for the restoration of the lung to its natural condition, or may there not be some other morbid state to be overcome before we can bring about so fortunate a result? Does a paralysis or

atony of the circular fibres of the more minute tubes exist? Or, as Magendie has suggested, is the natural elasticity of the lung destroyed or injured? It seems not improbable but that both these circumstances may occur, the muscular structure being paralyzed, as we see in the case of the bladder or the intestinal tube, and the longitudinal fibres losing their elasticity from the persistence of chronic irritation, just as the elastic coat of arteries loses its property when chronic disease affects these vessels.

It is plain that farther observations are necessary to clear up these points; and I shall merely remark, that after the use of treatment calculated to remove congestion, inflammation, or other obstruction of the minuter tubes; after the adoption of the means which Laennec has pointed out for the relief of the dry catarrh; and lastly, after using all means which could moderate the cough, or render it less frequent, we might then have recourse to measures calculated to stimulate the contractile tissues of the lung. As yet we are not in possession of means capable of restoring elasticity to such tissues as the longitudinal fibres of the lung, or the middle coat of the arteries; but we do know of remedies capable of stimulating muscular fibre to resume its vital contractility, at least of that portion of the muscular system which is supplied by the cerebro-spinal nerves. It has been suggested to me by my friend and pupil, Mr. Martin, that in the exhibition of strychnine this object might be attained. This practice would be well worthy of trial, for if, as there is reason to believe, the pulmonary branch of the vagus is a nerve of motion to the lung, we might expect that the stimulation exercised by the remedy on the cerebro-spinal centres would have a beneficial effect in paralysis of the bronchial muscles.



## PART II.

ON PARALYSIS OF THE INTERCOSTALS AND DIAPHRAGM CONSIDERED  
AS A NEW SOURCE OF DIAGNOSIS.

The observations which I have to offer on this subject were communicated to the medical section of the British Association, at the late meeting in Dublin, and inserted in an abridged form in the report of its proceedings, which appeared in this Journal. Since that period I have had additional opportunities of verifying the statements then made, which I now consider as established, and of no little importance in diagnosis and general pathology.

Without entering on the question, as to whether the organic diseases of the thoracic viscera are followed *in all cases* by some alteration in the volume of these organs, we may divide the cases of thoracic diseases into two classes :

*First*, Those in which there is no manifest alteration ; and,

*Second*, Those in which there is a manifest alteration of volume.

It is obvious that in the latter case two subdivisions must be made, as there may be on the one hand an increase, and on the other, a diminution of volume.

Now this division applies more to the cases than to the diseases themselves ; for a similar disease may occur in one patient with, and in another without, alteration of volume ; and in the same patient we may have, at different periods of the affection, either an augmentation or a diminution of volume.

These enlargements are of two kinds. There may be an actual increase of volume in the parenchyma of the organ, as we see in hypertrophy of the lung or heart ; or the serous coverings of these organs may be distended by the products of disease, so as to displace the surrounding parts, and thus give rise to most important physical signs. To these affections then, when occurring to such a degree as to cause obvious changes in the form of the surrounding parts, we may give

the name of "*diseases of accumulation*;" and we shall find that the principles of their diagnosis are, to a certain degree, similar.

But another, and still more important division is to be founded on the effect of disease, in diminishing or increasing the quantity of air within the thorax. In the great majority of instances, the amount of air is diminished; but in a few it is increased. Now if we take empyema, on the one hand, and dilatation of the air cells and pneumo-thorax on the other, we find that these *diseases of accumulation* may occur with a diminution, or with an increase in the quantity of contained air: so that their diagnosis depends, first, on the evidences of accumulation; and next, on the physical properties of the accumulated matter. In empyema, there is accumulation, and pressure from a non-elastic fluid; while in Laennec's emphysema, and in pneumo-thorax there is also accumulation, but from an elastic medium; hence we arrive at the first step in the diagnosis of these lesions. In empyema we have, in addition to all the evidences of displacement of the lung, the side, the mediastinum, and diaphragm, proofs of *a diminution of the quantity of air*, which may amount almost to its total absence from the affected side, *the sound on percussion being dull*. In the other affections we have also displacement, which, as far as the non-muscular portions of the chest are concerned, is similar to that in empyema, but there is evidence that the air has not only not been diminished, but that it is increased, the sound on percussion being clear, or morbidly clear.

When we compare the chests of two individuals, the one affected with empyema, and the other with this dilatation of the cells; we observe that in both there is evidence of accumulation, the side being distended, and the mediastinum displaced. But when we investigate this point more closely, we find some interesting points of difference between the results of these diseases on the thoracic parietes, *particularly with reference to their muscular portions*.

This leads to a most interesting subject for investigation, namely, the effect of these *diseases of accumulation* on the muscular or more vital portions of the thoracic walls. I shall examine the state of the intercostal muscles and diaphragm in the two diseases which I have selected for comparison.

The peculiar smoothness of the side in empyema has been long described as a pathognomonic sign of the disease. It proceeds, as every one knows, from a yielding of the intercostal muscles, so that the spaces become obliterated, and thus the smoothness is produced. Further we find, as I have shewn in a former paper, that in like manner the diaphragm yields until it may even become concave towards the chest, and convex towards the abdomen; pushing before it the viscera which lie in the upper portion of that cavity.

But these phenomena are by no means so marked in the dilatation of the air cells, in which, as I have shewn in the preceding part of this paper, the disease may exist to a great amount, and the chest be extremely dilated, without any one of the appearances above mentioned; the intercostal spaces continue, in all cases, well and deeply marked; and in one class of cases the diaphragm remains unaffected, even though the pressure be so great as to change the form of the chest.

Let us now inquire why it is that this remarkable difference exists. By examining the circumstances of either case we may arrive at the explanation.

In empyema, *there is a combination of vital and mechanical causes.* We have *inflammation followed by pressure*, and pressure from a liquid.

In the dilatation of the cells we have only pressure, and this from an elastic fluid.

Now in this circumstance of inflammation,—of the pleuritis, which causes the effusion in empyema, and *which continues to act long after the effusion has set in*, it appears to me that we have the explanation of the dilated state of the intercostals, and the yielding of the diaphragm.

When a tissue such as mucous or serous membrane is inflamed, we find that certain effects are produced on the muscular expansions or the masses with which they are closely connected ; their functions suffer, and we observe, first, an increase of innervation, as shewn by pain and spasms ; and next, a paralysis more or less complete. The same circumstances occur when the inflammation is seated in *the muscular structures themselves*, or in the *cerebro-spinal centre from which they derive their innervation*. In all these cases, whether of contiguous inflammation, of actual disease of the muscular fibre itself, or of inflammation of the brain or spinal marrow, we have produced, first, a *plus*, and afterwards a *minus* state of innervation. When the latter condition supervenes, the muscular fibres lose their contractility ; and if the organ be a tube surrounded by fibres, it dilates ; or if an expansion similar to the intercostals or diaphragm, it yields easily to pressure.\*

Now the true explanation of the protrusion of the intercostals and diaphragm will be found to be, that they are affected with this paralysis following inflammation of a contiguous structure, that their contractile powers are lost, and that hence they yield easily to a pressure which, in their healthy state, (as we have seen in the vesicular emphysema,) they could effectually resist.

But we must examine into the evidence of this theory of displacement of the thoracic muscles in emphyema.

The first point of evidence is obvious when we reflect on the general effect of irritation on muscular fibre. Now in the case before us we may observe, that the phenomena are in accordance with this admitted effect. In the first stage of pleuritis we have great pain ; difficulty of respiration ; hurried breath

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\* Here I would refer to the researches of Abercrombie on Ileus, which have demonstrated, that the contracted portions of the tube are healthy, and that the morbid appearances are confined to the dilated parts ; the loss of power being the true cause of the constipation.



ing; pain increased on a deep inspiration; and all this *without protrusion of the intercostal spaces or diaphragm*, but rather with a spasmodic state of these expansions, conditions which accurately correspond to the plus state of innervation which occurs in the first stage of muscular irritation.

But in the more advanced periods, the reverse of all this occurs. The pain ceases, the dyspnœa greatly diminishes, the breathing becomes slower, the diseased side is comparatively motionless, while the healthy one is acting with great power, *and the intercostal spaces and diaphragm yield*; the first causing the characteristic smoothness of the side, and the next, the depression of the abdominal viscera. I need hardly remark, that these circumstances correspond with the minus condition of innervation, or paralysis of the muscular fibres.

The next and most important evidence is the fact, that mere pressure seems insufficient for the phenomenon in question. If the theory which I have given be true, it should follow, that in other diseases of accumulation, where inflammation of the pleura was not present, but where there was merely pressure, this muscular protrusion should either not occur, or be much less marked. Now such may be observed to be the fact. Let us take Laennec's emphysema, hydrothorax, and enlargement of the liver as examples; in all of which there is evidence of pressure from within. Thus, in Laennec's emphysema, we have already studied the great enlargement of the chest, and the displacement of the mediastinum and heart, and have seen, *that even when the diaphragm is flattened, (as occurs in a certain class of cases,) its innervation is not destroyed*. In hepatic enlargement we may see, also, evidences of pressure from the great tilting out of the side, and the state of the lung. While in hydrothorax, the pressure is demonstrated by the diminished volume of the lung, which, though a muscular organ, cannot avail itself of its powers in resisting pressure from without.

But notwithstanding all this pressure it will be found, that

in all cases of emphysema and enlargement of the liver, and in many, at least, of hydrothorax, the intercostal spaces do not yield; a fact which may be constantly verified in dilatation of the air cells, and in hepatic enlargement, and which I *have lately observed in three cases of symptomatic hydrothorax*, in which, although the effusion amounted to several pints, and the corresponding lung was reduced in volume, neither the intercostals nor diaphragm were affected. It is not many years since I pointed out the value of the absence of intercostal dilatation in distinguishing an enlarged from a displaced liver. In all these cases we may have great displacement of the side or thoracic viscera; yet there is merely pressure, and though the ribs are dilated, the intercostal spaces preserve their relative positions.

The last point of evidence is the fact, that in certain cases of empyema I have observed a *sudden* yielding of the diaphragm, which, up to a certain period, had preserved its natural position. This yielding was as extensive as it was sudden, *and in one case was not accompanied by evidences of increase of effusion*. How much more easily we can explain this interesting fact, on the supposition which I have adopted, than on the idea of gradual pressure on a vitally resisting medium.

I trust that I have now established that the protrusion of the intercostal spaces and the depression of the diaphragm in empyema, result principally from a paralyzed state of these expansions; and without denying the influence of pressure, that this latter seems secondary to the inflammatory action in causing the yielding of the muscles by a paralysis. If this doctrine be true, it furnishes some important additions to diagnosis: it will give a new point of difference between the signs of hydrothorax and empyema, and perhaps furnish a measure of the intensity of inflammation in any given case of the latter disease. On the value of this point in prognosis, and in determining for or against operation, I need not here descant.

Let us next inquire how far the existence of paralysis of the inspiratory muscles may act in inducing that contraction of the

side which Laennec first described as a consequence of the absorption of inflammatory effusions into the pleura. For this result he has given two causes, namely, the binding down of the lung by a fibro-cartilaginous membrane, and its diminished volume, the consequence of pressure and disease. But we may safely add to these causes the weakened state of these muscles which so powerfully expand the chest; the intercostals no longer elevating the ribs, and the corresponding ala of the diaphragm not being capable of contraction, it would follow, that even though the lung was not bound down by fibro-cartilaginous membrane, or atrophied by pressure or disease, it would not regain its volume, as the effusion disappeared. The great source of its restoration is injured or removed, and it remains in a diminished volume because it is not expanded by the inspiratory efforts. Laennec himself has admitted, that the existence of a fibro-cartilaginous membrane is not necessary for producing contraction, and I can verify this by the observation of several cases; and may add, that in the cases of recovery which I have observed, I constantly found that the lower the form of inflammation, the more the disease approached to hydrothorax, the less did contraction result on the absorption of the fluid.

I cannot help pointing out some other applications of this principle as subjects for future investigation. We find in the different forms of thoracic disease, three cases, in which muscular fibre is affected by inflammatory disease of another structure. These are *pleuritis*, of which I have already spoken, *bronchitis*, and *pericarditis*: in all these the suffering of the muscular tissue in the earlier stages has been recognized; but the effects of inflammation in a more advanced condition, and which must in many cases be present, have been quite neglected.

In bronchitis we may inquire how far the paralysis of the circular muscles of Reissessen accounts for that accumulation in the tubes, so commonly seen in bad catarrhal fevers. In such

cases we constantly see patients dying *without general prostration*, but on the contrary, with a singular degree of muscular strength, as far as the system of animal life is concerned, and with loss of power only of those muscles of organic life which have been injured in the way pointed out. We may by emetics again and again relieve the chest, and in the interim neglect no means with which we are acquainted to remove congestion or inflammation, and yet a fatal termination supervene to this melancholy, and to the thinking physician most humbling scene. We should inquire how far the existence of this state should lead us to modify our treatment, and seek for some agent which would stimulate the bronchial muscles to contract. Further, we may understand more clearly how it is, that after the first stage of bronchitis or that of muscular spasm has passed by, that further antiphlogistic treatment is so often followed by copious accumulation in the tubes, and also get an additional explanation of the efficacy of stimulants, both general and specific, in the advanced stages, or those in which a paralysis of the circular muscles in all probability exists.

It might be inquired how far this condition may assist in producing dilatation of the tubes. All authors seem agreed that the explanation by Laennec of the mode of production of this affection was too mechanical, and that something more is wanting on this point of pathology.

Lastly, in the case of pericarditis, it satisfactorily explains the fatal termination of the disease, and clears up the singular fact, hitherto unexplained, that death should occur from the inflammation of so limited a structure as the pericardium, while so extensive a sac as the pleura may be universally diseased, with preservation of life. If with these views we examine the symptoms of the first and second stages of pericarditis, it is not difficult to trace the analogy between this disease and pleuritis or enteritis. In the first stage, the violent palpitations, and the hardness of pulse, point out the state of muscular excitement, similar to what occurs in the early periods of pleu-



ritis or enteritis; and in the second the faintings, the weakness of pulse, the coldness, the feeble action of the heart, and obstruction of the circulation, are the indices of the muscular paralysis, of the same state of the muscles of the heart, as those of the intercostals in empyema, or the circular muscles in ileus.

Assuming that a semi-paralyzed state of the heart exists in advanced pericarditis, may we not further have an explanation of the common percussion of active aneurism to the disease. In the weakened state of the organ it yields to the pressure of the blood, and by degrees its cavities distend. On the hydrostatic principle the force of this distention must be every moment increasing, just as we see, in aneurisms of the aorta, that the larger the sac, and the more fluid the blood, the more violent will the impulse be, and of course the more rapid the extension of disease. Now, let us suppose the inflammatory process to cease, the muscular fibres of the heart recover their tone, but from the increased size of the cavities they have an increased duty to perform: they have to force blood into vessels which have not been proportionally dilated, and which of course resist; and then, from the well known law in physiology, we have increase of growth: to dilatation is added hypertrophy, and the active aneurism is established. This view of the supervention of active aneurism to pericarditis is still suggestive; further observations are necessary to clear up the point, but it is one of great importance, and I am the more anxious on the subject, inasmuch as the explanation which I have given differs materially from that of Andral,\* who affirms that muscular hypertrophy takes place from the first, and omits the possibility of an intervening paralytic condition of the heart. I do not suppose that my explanation will overturn his, for the disease may occur under both circumstances; let it suffice that I claim to add to the observations of such an author.

In concluding this paper, I beg to express a hope that the

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\* Clinique Medicale. Maladies du Cœur.

profession will receive these views and observations with indulgence. Some apology seems due for the length of the communication, and for adding to a record of actual observations a discussion on views which may be considered more or less hypothetical. But it was necessary to connect the papers on the diagnosis of vesicular emphysema, and on the paralysis of the respiratory muscles, as they are mutually illustrative, and embody principles of diagnosis hitherto unapplied, and common to the diseases of which they treat.

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*Observations on the Effects of Cold on the Human Body, and on a Mode of measuring Refrigeration.* By JONATHAN OSBORNE, M. D., President of the King and Queen's College of Physicians, &c. &c.

[Read before the Medical Section of the British Association, August 14, 1835.]

IT would be an interesting observation to ascertain by a tabular view the proportion of diseases produced by cold, as compared with other agents. In order to obtain some idea of the probable results of such a table, I have caused the patients at present in Sir Patrick Dun's Hospital to be examined, and it appears that of fifty-seven (the entire number) thirty-four can be distinctly referred to cold contracted in the following manner: in twelve from wet clothes, five from damp feet, three from bathing, and fourteen cold air when heated. The investigation of so powerful a cause of disease, and of an agent no less important as a means of cure, will, I trust, not appear unworthy of the attention of the section. I beg, however, to premise, that in the following observations, so far from taking a complete view of the subject, I design only to throw out a few hints intended to point out some new directions in which future researches may be carried on with advantage.

The temperature of the blood being about 98°, the same

temperature pervades every part of the body except the surface and extremities, where there is the greatest exposure to the cold of the atmosphere, by means of clothing the action of this external cold is regulated according as the diversities of seasons and climates affect our feelings, and this is done in such a manner that the differences of temperature shall be easily compensated by corresponding varieties of clothing. Thus the Esquimaux wrapped up in fur, and the naked inhabitant of central Africa, are equally intent on maintaining the same temperature. There is, however, one exposure to external cold which lies beyond the boundary of artificial protection; I allude to that of the air passing through the air passages of the lungs for the purpose of respiration.

The air expired is always heated to nearly the same temperature as the blood, and the quantity of air expired in every hour being nearly twenty-eight cubic feet, it gives us some fixed idea of the quantity of heat given out in this way to recollect, that every hour, from the air surfaces of the lungs alone, there is extricated sufficient heat to elevate twenty-eight cubic feet of air of the temperature of the atmosphere, whatever that may be, to the temperature 98°. As warm bodies give out heat in a greatly increased ratio in proportion to the difference of the temperature, it follows that the air will be much more heated during the first half of the respiration than the last, or in other words, in inspiration than in expiration, and hence that when arrived in the air vesicles the air has acquired considerably more than half the original difference of temperature. As the experiments of Sir B. Brodie, in 1812, proved that animal heat was not kept up by respiration, but that on the contrary, animals in whom the nervous centre was destroyed cooled down with increased rapidity when respiration was artificially kept up, although the changes in the air and in the colour of the blood were such as to prove that that function was fully performed; and as, moreover, we find that animals in hot weather respire more than in cold, and that not only in motion but

also at rest they respire more in proportion as they are heated, there appear good grounds for considering respiration as a cooling process, whatever other changes it may, in addition, perform in the economy.

In cases of emphysema of the lungs a great accession of difficulty of breathing takes place in cold weather, especially when the temperature is at or below freezing point. This is susceptible of a mechanical explanation. The air arriving at the air cells at a lower temperature than ordinary, expands within the cells and distends them in proportion to the difference between it and  $98^{\circ}$ : thus the space remaining for respiration is contracted, and the air having a greater facility in passing into the cellular structure in inspiration than in escaping from it in expiration, in consequence of the cells acting as valves, the dyspnœa has, in this case, a constant tendency to increase.

When, in consequence of that sinking of nervous energy which takes place in inflammations of mucous surfaces, a reduction of the temperature of the exterior of the body ensues, as is witnessed in chronic bronchitis, then the air, from the want of heat in the air passages, reaches the vesicles of the lungs in a lower state of temperature than ordinary, the result of which is a torpor of the capillaries or other receptacles of blood in the lungs in addition to that before existing; they are thus at length rendered incapable of contracting on the blood contained in them, a stoppage of the pulmonary circulation ensues, life is extinguished, and on examination after death, the lungs, the right cavities of the heart, and the whole nervous system are found gorged with blood. This state of things, which is of frequent occurrence in low fevers and chronic bronchitis, is usually attended by a coldness and lividness of the extremity, and in addition to the administration of those stimulants which are known to excite the superficial capillary circulation, requires the temperature of the apartment to be kept secure from the sudden depressions which are so common in our climate, and to which so many sudden deaths, occurring during the night in



chronic bronchitis, are to be ascribed. In a healthy individual, however, the effect of vicissitudes of temperature on the respiratory system, by means of the air respired, is slight, being usually confined to inflammation about the rima of the larynx, contracted after suddenly passing from a hot apartment into the cold air. The air, as appears from what has been stated, is in health so much heated before its arrival at the minute branches of the bronchial tubes that it is always disarmed of any injurious properties arising from temperature. This appears to be one of the provisions of nature in a matter wherein we are unable to guard ourselves.

It is a common opinion, that sleeping in newly built and damp houses causes various inflammatory affections. This appears not to be the case, if the clothes worn by the individual are kept dry. I am told by a highly informed physician, who was in the medical department of the army, that his regiment was quartered in more than one of the barracks which were at that time built, and in which the plastering was not finished, yet that no soldier got cold. I find that every individual in bed raises the temperature of the air, under the bed clothes, to about eighty. Hence, if they can be kept dry, by removal during the day, or by careful airing, the damp air can prove injurious in no way except by the lungs, which, as we have seen, are, in health, protected against its injurious effects.

The stomach possesses almost no sensibility with regard to cold or heat. We take tea or other hot beverages at the temperature 140, and ice at 32, without the difference being perceived in the stomach. It is only in the mouth and pharynx that we recognize their temperature, and children who have taken hot substances into the mouth, may frequently be observed to swallow them *in order to get rid of them*. There is, notwithstanding, sufficient evidence to prove that cold fluids act on the stomach in the same way as on the exterior. When cold water is taken by a thirsty individual with strong powers

of reaction, it allays the thirst only for a short time ; the reaction produces a return, and very often an increase of thirst. This is particularly observed with respect to ice, and the power which some fluids possess of permanently allaying thirst, is to be attributed to the presence in them of some astringent quality, which represses the reaction now mentioned. Such liquors are solutions of alcohol, or bitter infusions, as porter, tea, &c. &c.

Cases of intense gastritis are known to have arisen from drinking large draughts of cold water by individuals when heated, and especially when under the exhausting influence of fatigue. Such cases appear susceptible of explanation from the overpowering influence of the cold, causing, not reaction, but torpor of the circulation in the vessels of the stomach, and consequent permanent fulness and distention of them, which we have good grounds for considering as the essential character of inflammation in its first stage.

In the exterior of the body, where we are enabled actually to see the changes produced by cold, we observe two results, according as the application is transient, or continued ; when the application is transient, and the circulation vigorous, a contraction of the vessels and paleness of the surface are produced, which is only momentary, and is promptly succeeded by reaction, evinced in increased heat and diffused blush of redness. When, however, the cold application is continued, the pale and shrunken state of the surface is gradually succeeded by a purple or livid colour, attended with increase of size, from the swollen state of the vessels. Those observations may be verified by exposing the hand, with a ring fitted on a finger, to a current of cold air. At the first effect of the cold the finger will be rendered pale, and too small, but, at the second, purple and too large for it. Taking this in connexion with the fact, that during the highest intensity of inflammation, nothing but dilatation of the small vessels of the inflamed parts can be observed, and also with the experiments

detailed by Dr. Alison, at the last meeting of the Association, &c., alluded to by him yesterday, from which it appeared, that in inflammation not only the small vessels, but also the large arterial trunks, leading to the inflamed parts, were dilated, filled with blood, and rendered incapable of contracting on their contents like other arteries. Taking all these facts and comparing them together, I ask, does it not appear that cold produces inflammation, by producing torpor and dilatation of the vessels, either of the part itself, or of some connected or adjacent part, which if not removed by a transient but sufficiently vigorous reaction, is followed by the permanent reaction of inflammation, bringing a number of new phenomena in its train.

The effect of cold on the air tubes of the lungs and on the stomach, is of little importance when compared with that on the skin. The various contrivances which mankind have adopted in order to obtain protection against its influences, in the diversities of clothing, habitation, or artificial heat, prove how much its action on the exterior affects the comfort of our present state of existence. Men of science have not been deficient in exploring the phenomena of the weather. The changes of the atmosphere have been well examined in different climates and seasons, and their effects on the thermometer, barometer, and hygrometer, carefully noted and exhibited in the most accurate manner. Yet, after all, how little has meteorology contributed to our knowledge of the influence of the atmosphere on health or disease. It has appeared to me that the one circumstance of the highest importance, in order to connect this science with utility, as far as mankind is concerned, has been omitted. This is *the cooling power of the atmosphere, estimated with reference to ourselves*. The human body is heated to nearly ninety-eight, and is placed in a medium always cooler than itself. The degree of cooling influence exerted on it has never been made the subject of measurement, and to the present time is judged of solely by the

feeling. I shall now describe the means which I adopted in order to measure this cooling power, or refrigeration performed by the air around us, and lastly, mention a few of the results which I obtained by means of it.

I took a spirit thermometer, without a frame, carefully graduated from the degrees ninety to eighty, inclusive, that being nearly the temperature of the exterior of the body, and having heated the bulb to ninety, I exposed it to the cooling influences of different situations, and inferred that their refrigerating power was inversely, as the time which was required to cause the descent from ninety to eighty degrees.

A spirit thermometer is preferable to one of either water or mercury, not being so rapid in its descent, and thus affording more time for accuracy in counting the seconds. That which I used had a bulb of about one half-inch in diameter, with a stem six inches in length, and a scale affixed, denoting the interval between ninety and eighty degrees. When an observation was to be made, the bulb was readily heated, either by the heat of the hand or by plunging into warm water. The importance of the information afforded by this simple method appears from this consideration, that it exhibits the combined result of radiation and of the conducting power of the atmosphere, as modified by its temperature, its density, its moisture, and its currents; and that result the most interesting of all to the invalid, *who, in respect of temperature may be conceived to be represented by it.* As the variety in the shape of the bulb, the bore of the tube, the thickness of the glass, or the density and quantity of the fluid employed, will cause variety in the time of descent, in order to obtain uniformity in the thermometer, for this purpose it will be necessary to place a number of them, previously graduated between ninety and eighty, and heated to ninety, in air of the temperature of sixty or fifty, and to select only those which contract according to whatever time may be fixed on as a standard.\*

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\* To shew the differences of time in the descent of spirit thermometers, I



The thermometer so applied, I beg to call by the name Psychometer, or measurer of cooling, both to avoid circumlocution, and in the hope that some improvements may hereafter be devised with respect to it.

The following table exhibits some observations made with the spirit thermometer, No. 4, in the air, which serve to shew how much its refrigerating power depends on a combination of circumstances, and not on temperature alone, as is commonly assumed.

		It cooled in		Min.	Sec.	
In doors.	{	In temp.	49	-	1.	28 at rest.
		—	56	-	2.	10 do.
		—	62	-	3.	30 do.
		—	do.	-	1.	0 agitated with the arm.
		—	do.	-	1.	30 fanned with paper.
		—	68½	-	4.	0 at rest.
		—	do.	-	2.	40 walking about.
		—	70	-	5.	40 at rest.
		—	do.	-		58 blown on with a bellows.
		—	do.	-	2.	50 { in a slight breeze at a window, the air outside of the same temp.
Outside.	{	In temp.	39	-	50	{ at Kingstown, wind SSE. at 5 P.M. Nov.
		—	42	-	1.	5 Kingstown, wind SSE. 10 A.M. Nov.
		—	60	-	3.	0 calm night.
		—	do.	-	1.	48 at night, a slight breeze.

subjoin the following table, exhibiting the time in which several thermometers fell from 90° to 80°, on being immersed in water of the following temperature, at rest :

		56° FAR.	63°	70°	77°
Spirit Thermometers.	{ No. 1, with a cylindrical bulb,	5°	7°	12°	26°
	{ No. 2, Do.	7°	10°	16°	31°
	{ No. 3, Do.	8°	11°	17°	37°
	{ No. 4, a spherical bulb,	12°	16°	28°	55°
Mercurial,	No. 5,	5°	7°	13°	36°

In air at rest at 60°, the mercurial and spirit thermometers, Nos. 5 and 4, cooled from 90° to 80° in the following times, { Spirit thermometer, in 3<sup>m</sup> 30°  
Mercurial, in 3<sup>m</sup> 22°

Compare these experiments with the observation made in Captain Parry's voyage in the polar regions; the men bore the air at 0 when walking in the open air in calm weather: this was not the case if the air was agitated. They suffered more cold in a breeze when the temperature was only 20° than at 0 when the air was at rest. From the refrigerating effect of a breeze, even at high temperature, and the small degree of respiration required during rest, there can be no doubt that when the fatal catastrophe took place in the black hole at Calcutta, all the lives of the party might have been preserved if they had sat quiet, and allowed one of their number, by turn, to stand near the window and to fan the external air into the apartment. From those observations will directly appear the fallacy of determining as to the climate of any place by the thermometer. Thus there are situations near the sea which exhibit no thermometric depression of temperature, but which are cold, arising from a difference of radiation from the surface of the water and earth, respectively causing, in the first place, a current of air, and in the second place, a precipitation of moisture dissolved in the air, which, as Sir H. Davy proved, must take place under those circumstances. Thus a degree of cold is produced appreciable to the feelings, and highly important to the invalid inhabiting those situations, but not recognised by any instrument, except that which is now offered to your notice. It is not too much to expect, that by means of it much light may be thrown on the unhealthy climates of the West Indies, and the western coast of Africa, although the meteorological tables kept at those places have hitherto failed in explaining their insalubrity.

The following observation exhibits the refrigerating power of water above air of the same temperature, to be nearly as 14 to 1:

In air at rest, temperature 70, the psychrometer cooled

from 90 to 80 in . . . . . 5<sup>m</sup> 40°

In water at rest, same temperature, . . . . . 24<sup>c</sup>

This difference augments in a greatly increased ratio at lower temperatures.

It is well known that in swimming it is not the fatigue so much as the refrigeration which fixes the limit. This appears from the following observation compared with the former :

The instrument agitated in water at 70, cooled from 90 to 80 in 15°. Hence it follows that even at this high temperature, water cools a body agitated in it more than one at rest, in the proportion 24 to 15.

The most frequent mode in which cold produces its injurious effects on the system is, when applied in the form of damp clothes. In order to ascertain the extent to which refrigeration is produced in this way, I covered the bulb of the psychrometer with cotton wool, and having placed it at rest in an apartment at  $68\frac{1}{2}$ , found it to cool down in 10<sup>m</sup> 14°; placing it in the same circumstances, but with the cotton wool slightly damped, it cooled down in 2<sup>m</sup> 57°. Hence it appears that the refrigerating influence of damp woollen cloths is to dry, nearly as 5 to 1 when the air is at rest, a proportion which must be much increased when occurring in the open air. I may here mention incidentally, that I have availed myself extensively of cotton wool, applied to the surface, and kept moist by being sprinkled with water or evaporating lotions, in affections of the head and other cases in which constant refrigeration is required, and can recommend it as superior to the usual mode of applying cooling lotions, not only by the constancy with which the refrigeration is maintained, but on account of its being much more grateful to the feelings of the patient.

There are many other applications of this instrument which I might introduce to the notice of the section. Those which I have mentioned appear to me sufficient to prove the general utility and correctness of the indications afforded by it, my avocations not allowing me the requisite time for properly investigating the subject.

I hope that it may be taken up by others, in which case I also indulge a hope that it may hereafter be found useful, not

only in testing the influences of climates and of localities on health, but also in ascertaining the causes of epidemics which are at present involved in so much obscurity.

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It was resolved at the last meeting of the British Association, held in Dublin,

“ That, for the purpose of prosecuting inquiries suggested by Dr. Osborne, on the application of cold to the human body, sub-committees be appointed in London, Edinburgh, and Dublin, consisting of

“ LONDON : (not named.)

“ EDINBURGH : Drs. Abercrombie, Trail, Christison, Handyside, Alison, and Cragie.

“ DUBLIN : Drs. Osborne, William Stokes, Croker, Apjohn, and Hunt.

“ That a copy of Dr. Osborne's communication on this subject, be furnished to the members of these committees, with a request that they will report to the meeting in 1836.

#### APPENDIX.

Within the last few days I am indebted to my friend Mr. Andrew Williamson, for the following observations, made in an elevated situation near the sea at Kingstown. Although it is desirable that such should be accompanied by observations on the anemometer and hygrometer, yet in their present state they are sufficient to show :

*First.* The great want of correspondence between the temperature of the air, as indicated by the thermometer, and the refrigeration which is produced by it on a body of the temperature of the surface of the human body. Thus, on the 8th of January, the temperature being forty-one, the instrument required forty-one seconds for cooling, and on the 9th, the temperature being the same, it cooled in  $17\frac{1}{2}$  seconds: hence it is to be inferred, that in the latter case the actual cold experienced by an individual was above double of that in the former.



*Second.* That *ceteris paribus* the cold must be felt more severe when the temperature is a little above than when below freezing point. This is a consequence of the presence of moisture in the former case causing increase of conducting power.

*Third.* That the greatest refrigeration takes place at the present season towards sun-set, (between three and four P. M.) a fact confirmed by ordinary experience.

*Fourth.* That (within certain limits to be ascertained hereafter) the moisture and motion of the air have more effect in producing refrigeration than its temperature. See observations first, third, and last.

## MR. WILLIAMSON'S TABLE, KEPT AT KINGSTOWN.

PSYCHROMETER WITH A CYLINDRICAL BULB.

Time of Observations.	Wind.	Thermometer.	State of Atmosphere.	Time of Cooling from 90 to 80.
1836:				s.
12th Jan., 9 A. M.	W.	27	Dry, nearly calm. . . . .	19
11th Jan., 9 A. M.	W.	27	Dry, slight breeze. . . . .	17½
— 3 P. M.	W.	30	—	30
16th — 9 A. M.	..	30	—	20
15th — 9 A. M.	..	32	Clear, dry, very windy. . .	16
10th — 4 P. M.	E. N. E.	34	Dry, with strong breeze. . .	15
16th — 8 P. M.	W. by N.	34	Clear, dry, slight breeze. . .	24
9th — 4 P. M.	S. S. E.	38	Strong breeze, with slight rain.	16½
17th — 2 P. M.	W.	40	Clear, dry, very slight breeze.	26
8th — 9 A. M.	S.	41	Calm, damp. . . . .	41
6th — 9 A. M.	S. W.	41	Almost calm, clear. . . . .	36
1835:				
30th Dec., 9 A. M.	N. W.	41	Calm, dense fog. . . . .	33
6th Jan., 6 P. M.	S. S. E.	41	Fresh breeze. . . . .	23
29th Dec., 4 P. M.	W. N. W.	41	Dry, slight breeze. . . . .	21
28th — 4 P. M.	N. W.	41	—	20
18th Jan., 9 A. M.	W.	41	Rather foggy, strong wind. .	18
9th — 9 A. M.	S. S. E.	41	Damp, strong breeze. . . . .	17½
11th Dec., 2 P. M.	S. S. E.	43	Dry, windy. . . . .	38
2nd Jan., 4 P. M.	N. N. E.	44	Almost calm, sea fog. . . . .	43½
30th Dec., 4 P. M.	W. by N.	44	Dry, slight sea fog. . . . .	27
— 2 P. M.	..	46	—	28
4th Jan., 5 P. M.	W.	48	Damp, strong wind. . . . .	25
5th — 9 A. M.	W.	48	—	24
28th Dec., 10 A. M.	W.	49	Hazy, strong wind. . . . .	21

ART. V.—*On Fistula Lachrymalis, in which a new Method of operating is proposed; and on Injuries of the Eye from Lime and Foreign Bodies.* By ARTHUR JACOB, M. D., M.R.I.A., Professor of Anatomy in the Royal College of Surgeons, and one of the Surgeons to the City of Dublin Hospital.

[Read at a Meeting of the Surgical Society of Ireland.]

NOTWITHSTANDING all that has been written on this subject, I venture to offer a few observations in addition to those which I submitted respecting it some years ago in the fifth volume of the Dublin Hospital Reports, and I consider myself justified in doing so by the difference of opinion respecting the matter entertained by the best modern authors.

The simple course prescribed by Mr. Ware is probably, after all, the most practicable, and most likely to terminate successfully; he says, “If the disease has not occasioned an aperture in the lachrymal sac, or if this aperture be not situated in a right line with the longitudinal direction of the nasal duct, a puncture should be made into the sac at a small distance from the internal juncture of the palpebræ, and nearly in a line drawn horizontally from this juncture toward the nose, with a spear-pointed lancet. The blunt end of a silver probe, of a size rather smaller than the probes that are commonly used by surgeons, should then be introduced through the wound, and gently but steadily be pushed on in the direction of the nasal duct, with a force sufficient to overcome the obstruction in the canal, and until there is reason to believe that it has freely entered the cavity of the nose.” “The probe is then to be withdrawn, and a silver style, of a size nearly similar to that of the probe, but rather smaller, about an inch and three-eighths in length, with a flat head like that of a nail, but placed obliquely that it may sit close on the skin, is to be introduced through the duct in place of the probe.”

The first direction in the above which calls for observation,

is that of pushing the probe gently with a force sufficient to overcome the obstruction. Now the fact is, that the obstruction is often so firm, that it will not yield to a gentle force, and the surgeon must use very considerable pressure to overcome the resistance. I have more than once found it impossible to pass down the blunt probe with all the force I could exercise, probably in consequence of the passage having been completely blocked up by the preceding inflammation. Under such circumstances, I cut away the large part off the handle of a very fine trocar, made for puncturing tumours suspected to be aneurismal, and passed the instrument into the sac, carrying the point downward with a rotatory motion until it reached the nose. I then withdrew the trocar and passed a silver wire in its place, which I retained while I pulled away the canula, leaving the wire behind as a style in the nasal duct. Dr. Lubbock of Norwich, has just described in the *Edinburgh Medical and Surgical Journal*, a grooved knife for penetrating the obstruction, and affording a means of passing the style. "The blade is two inches and three quarters long, including the shoulder, and less than an eighth of an inch broad. In shape it resembles a catlin, and cuts upon both edges for the extent of half an inch from its point, where the knife is thin ; but as the thickness of the instrument increases towards the handle, the edges become too thick to cut easily. The groove extends exactly along the centre of the anterior surface ; the posterior surface is slightly convex, in order that the groove may be made as deep as possible." I have no doubt that this contrivance is well calculated to effect its object.

Having sometimes experienced considerable difficulty in introducing the common nail-headed style after the probe with which the passage had been forced was withdrawn : and also, having seen several cases in which the common style had slipped down into the duct, and its head became concealed in the sac, I adopted the following plan, and found it in several cases safe and convenient.

Having made the opening into the sac, I pass a common surgeon's probe into the duct, and force it firmly and steadily through the obstruction, till the point rests on the floor of the nostril. I then bend the probe down on the cheek, over the point of my finger, which I press against it where it protrudes from the external opening, and then cut it off with a bone forceps to the proper length ; thus leaving a style the exact length of the passage which cannot become concealed by its head slipping into the sac. As the tumefaction subsides, the protruding part of the style is shortened with the cutting piers, until it is on a level with the orifice in the skin, when it may be taken out and blackened with sealing-wax as the head of the common style is, and again replaced ; which at this stage is attended with no difficulty.

It appears surprising to me that surgeons have never recollected that an opening might be made into the lachrymal sac without cutting through the skin of the face, and thus producing a cicatrix in a situation where it should be avoided. Surely the sac is as accessible, if not more so, within the eyelid as without. Externally it is covered by the skin and the fibres of the orbicularis palpebrarum, the tendon of which muscle running across the sac to its insertion, leaves a very small space for an opening between it and the ridge of bone belonging to the nasal process of the superior maxillary bone, which constitutes here the prominent margin of the orbit, and by its elevation renders the free access to the lower part of the sac somewhat difficult from without. Internally the sac is covered by the conjunctiva, some adipose cellular membrane, and Horner's muscle ; and the caruncula lachrymalis, lying over the termination of the lachrymal canals at the upper part, leaves at least a quarter of an inch accessible to the point of the bistoury below. The lower lid being depressed, the point of the instrument should be introduced into the sac just beneath the caruncula lachrymalis, and pushed directly downwards, inclining the edge of the blade a little inward ; when withdrawn, the finger depressing



the lid should not be removed, unless a canula, or Mr. Lubbock's bistoury be used, as the opening in the conjunctiva may then cease to correspond with that in the sac, and the introduction of the style be impeded. Since this mode of operating occurred to me, only one case offered in which it could be fairly tested. It was one of those enlarged sacs, distended with tears and mucus without inflammatory action. I compressed the tumour with my finger, at the same time pulling down the lower lid, thus rendering it prominent beneath the conjunctiva, where I opened it freely, introducing the bistoury just below the *caruncula lachrymalis*. I then passed the probe through the obstruction in the nasal duct in the usual way, bent it over the cheek as I have described, and cut it to a convenient length, allowing the projecting portion to fall in behind the lower lid, where it lay quietly for three weeks without producing irritation or inflammation requiring its removal.

I venture to suggest this mode of operating without having yet submitted it to a fair trial myself, with the hope that some surgeon, having extensive opportunities of ascertaining its value, may be induced to submit it to experiment, at the same time that I propose to do so myself. Many cases may occur where the plan cannot be adopted, as where there is abscess, with much external tumefaction of the lids; but even in such case, it may be a question whether an opening might not be made from the conjunctiva after the swelling has subsided. If a fistulous opening should remain, might it not be less annoying and less noticed inside the lid than externally? In considering this, or any other operation for the restoration of the passage from the lachrymal sac to the nose, the propriety of resorting to such a measure in all cases may fairly be questioned. Simple obstructions, with more or less of *epiphora*, or watering of the eye, are sometimes attended with little inconvenience, and often the obstruction is only temporary, arising from tumefaction of the mucus membrane from inflammatory action. In case of abscess of the sac, the most prudent course may be to open

it, and secure a free outlet for the matter for some days, after which the opening may be allowed to heal up, if so inclined ; and if it should become fistulous, the operation may be resorted to under much more favourable circumstances than while the parts are in a state of inflammation. Many patients prefer the inconvenience of the epiphora to that from the use of the style when the matter is fairly explained to them. I have not alluded to the ancient plan of introducing a tube into the passage, so extensively practised by Dupuytren according to the reporter of his lectures, because I think the extensive practice of any operation is not conclusive evidence of its superiority. A fair question to put with reference to the gasconade, that three thousand tubes had been introduced into the lachrymal passages by that gentleman, would be to inquire what became of those tubes, and how the cases terminated. The opinion of Mr. Ware, formed on a calm comparison of the plan with that of the common style, appears to justify the preference given to the latter by English surgeons.

#### INJURIES OF THE EYE FROM LIME.

Caustic lime is frequently accidentally applied to the eye in this city, either in whitewashing houses or mixing mortar for building. The effects of such an application have been repeatedly noticed by ophthalmic surgeons, but I think the subject demands more attention than it has received. The extent of the mischief depends, as might, *a priori*, have been supposed, upon the strength of the solution or mixture and the length of time it has been exposed to the atmosphere. When the mixture contains only a small quantity of newly slaked lime, or has been neutralized by absorbing carbonic acid, it merely acts as a severe stimulant, immediately causing increased vascularity, pain, and flow of tears, followed by acute inflammation of the conjunctiva, which does not present any peculiarity of appearance different from that produced by any other stimulating application.

When the lime is in greater quantity, or more caustic, its effects are much more injurious: it then destroys, by decomposition, more or less of the delicate transparent layer of conjunctiva which covers the cornea. Immediately after the accident the whole surface of the conjunctiva becomes turgid with red blood, and on close examination a patch, or even the entire of the membrane, is found detached from the proper cornea. There is no difficulty in recognizing the nature and extent of the injury. If a small portion only of the conjunctiva be removed, a shallow depression is visible with irregular edges and perfectly smooth bottom, as is seen in cases where the conjunctiva is detached without injury to the cornea, in slight wounds in stone-cutting, or from the nail of the infant accidentally scraping the nurse's eye. If the whole of the conjunctival covering of the cornea be destroyed the latter structure appears perfectly smooth, being naturally much more polished than the conjunctiva which covers it, and at the same time it becomes more or less opaque. This opacity, which sometimes amounts to a blue pearly whiteness, is not so easily to be accounted for as might at first sight be supposed. It is true, that the first obvious effect of inflammation of the cornea is a diminution of its transparency, and hence, the gray appearance of the wound after extraction of a cataract, or round the edges of an ulcer, as well as the white ring round the margin of the cornea, considered by ophthalmic surgeons as one of the characteristic symptoms of inflammation of the eye-ball; but this opacity is so suddenly produced, and so very considerable, that it can scarcely be attributed to inflammatory action. It, therefore, leads to a suspicion that the vitality of the part has been destroyed and decomposition of the structure produced. This, however, is not always the case, as instances of complete recovery have been observed without any sloughing process, which must have taken place had decomposition been effected.

If the lime be newly slaked and very caustic, and applied in considerable quantity, it operates as any other destructive

escharotic, causing death, not only of the conjunctiva but of the cornea. In such a case the cornea presents the opaque appearance and polished surface above alluded to, the conjunctiva being removed, perhaps by the friction of the lids after it had been burned by the lime, or by the handling of the part in attempts to relieve the mischief. I have seen the cornea recover its transparency after such considerable opacity from this cause, that I do not think the surgeon can with safety declare whether or not the sloughing process and complete destruction of the eye is or is not to follow.

The treatment of this accident is sufficiently obvious. If the surgeon be called at once, and while the lime is yet between the lids, which is not very probable, he should of course, as promptly as possible, remove it; and I see no more certain or rapid means of affecting this than by laying the person along upon the ground, and causing the lids to be forcibly opened, to pour a continued stream of water on the surface from the pipe of a tea kettle or some such vessel. It is objected to washing the eye with water that it dissolves and diffuses the lime more extensively over the surface, but it is obvious that lime is not soluble in water in any degree likely to lead to bad consequences, and that the mechanical effect of the stream of water is the least injurious means of removing the foreign material from the injured surface. The eye should afterwards be carefully examined with a magnifying glass with the upper lid everted, and if any particle of foreign body remains, it should be removed with a camel's hair pencil, and the surface be syringed with lukewarm water. The application of oil in such cases has been recommended, probably from its general use in burns of the skin: I believe, however, that is not calculated to relieve the pain; on the contrary, I am of opinion, from what trials I have made, that the conjunctiva is impatient of greasy applications under any circumstances. In severe cases, after washing the parts, I close the lids of both eyes, and lay a light compress, wet with cold water, over the injured one, and put the



patient to bed, and encourage sleep. Subsequently inflammation is to be allayed by leeching and the other usual means.

If the injury be simply the effect of the mere stimulation of the part, without any destruction of surface, recovery takes place without much interruption. If, however, a patch of conjunctiva be destroyed the process of restoration is necessarily slow, and we see the wound or ulcer gradually contracting day after day, as if by the edges of the injured conjunctiva growing on towards the centre till the whole of the denuded part is covered. If the surface has been destroyed by the caustic properties of the lime the cornea becomes more opake every day, and ultimately the surface gives way, and a slough remains which is gradually cast off, and the part heals with a permanent opacity proportioned in size to the original injury. Sometimes the destruction of a portion of the conjunctiva over the sclerotic, or lining the lids, is followed by adhesions of these to the eye-ball, causing much deformity and great inconvenience in the motions of the eye after all inflammation has subsided. Care must therefore be taken to prevent, if possible, the formation of these adhesions, or subsequently it may be necessary to divide them with the knife, an operation not always successful.

In the management of this and other injuries of the cornea, the liability to extension of the inflammation into the anterior chamber, and consequently to the iris, must not be lost sight of. If this should take place it is easily recognized, unless the whole cornea be opake, in which case the practitioner must be guided by the degree of vascularity of the sclerotic and the intensity of the pain.

It sometimes happens that the whole cornea is stripped of its conjunctiva without being itself destroyed by the caustic properties of the lime. This constitutes a very distressing and unmanageable form of injury. The surface is too extensive to admit of the growth of the conjunctiva over it, and it does not slough or break out into ulceration, but becomes very opake,

painful, and ultimately acquires a red vascularity. How such a state terminates I do not think I can safely say, as I lost sight of the case in which I was watching the process. In another case, in which the conjunctiva was completely removed from the whole cornea by boiling water, the patient suffered so much for several weeks without any change in the organization of the parts, that I determined to sacrifice the eye, and applied nitrate of silver freely, so as to produce a superficial slough, which being cast off the part healed in the usual manner, with considerably opacity.

Mr. Wardrop, in his work on the Morbid Anatomy of the Eye, records an instructive case of injury of the eye from lime. In this instance "nearly the whole external lamellæ of the cornea was destroyed; and from the small share of sensibility which the cornea possesses in its healthy state, the process of separation of the dead parts went on very slowly, and lasted several months. After the violent inflammatory symptoms were subdued, the chalky matter began to separate at the union of the cornea with the sclerotic coat, and numerous small red vessels were seen at the place where the separation was going on. The process of separation proceeded from the circumference to the centre of the cornea; small flakes of white matter could be daily observed to be coming away, and after the lapse of several months the whole disappeared, and the cornea regained nearly its natural transparency." As the separation went on the cornea beneath became very vascular, and the slough, which was hard and brittle, was not entirely cut off at the end of five months.

#### FOREIGN BODIES IN THE EYE.

The effects produced by the lodgment of foreign bodies in the structures of the eye, and the manner in which they sometimes become circumstanced, are worthy of attention, not only as regards ophthalmic surgery, but also with reference to the

pathology of wounds in general. The most minute particle resting on the surface of the conjunctiva, produces most distressing pain and inflammation ; but frequently when buried, however slightly beneath the surface, they create little uneasiness : several examples of this description of injury are recorded by authors. The following have occurred to me : a gentleman applied for assistance, on account of a painful sensation beneath the upper lid, with redness of the conjunctiva and increased secretion. On everting the lid, I perceived a small red tumour projecting from the conjunctiva, which I seized in a hook and clipped off, but in doing so experienced considerable resistance to the scissors ; and on examination, found that some foreign body lay concealed in the part ; this, upon extraction, proved to be a portion of a rush, about half an inch in length. The gentleman then, for the first time, recollected that he had fallen from his horse among rushes about a year before, and that he felt, at the time, some uneasiness of the eye, which speedily disappeared. A young lady was brought to me for relief, on account of tenderness and slight vascularity of the conjunctiva. In examining the eye, I discovered a small dark speck on the sclerotic beneath the conjunctiva, which felt hard when touched with the needle. On cutting down upon it, and extracting it, I found it to be a small particle of copper, which was ascertained to have been detached from a detonating cap which had flown from a gun, incautiously snapped by her brother near where she was sitting ; it had remained for several months in this situation and created very little annoyance. Had a grain of shot, or some foreign body, equally smooth and un-irritating been so lodged, the circumstance might not perhaps call for observation, but that a material so rough as a fragment of a rush, with part of its flower, or an irregular portion of such a metal as copper should not create inflammation and abscess, appears surprising.

It is not, however, beneath the conjunctiva only that foreign bodies remain without inducing inflammation ; instances are on

record where they penetrated into the chamber of the aqueous humour, and there remained without producing serious mischief. The points of badly tempered knives and needles have often been broken off in this situation, and have finally disappeared, by oxidation and solution, without injurious consequences ; but even without undergoing solution, fragments of metal may remain without causing that degree of inflammation to be expected from their presence in such a situation. Mr. M'Kenzie extracted a fragment of brass from the anterior chamber after it had remained there for twelve days, creating some but not very great inflammation. He also states, on the authority of Ammon, Salomon, and Grullich, that foreign bodies sometimes become enveloped in lymph, in the anterior chamber, and cease to create irritation. I some time ago assisted Dr. Alcock of this city, in removing a fragment of a detonating cap from the anterior chamber. It had at first been entangled in the surface of the iris without having been embedded in it, and here it remained for several months without creating much irritation. It was not removed, because it was so minute that we were not quite satisfied as to its real nature. From this situation, however, it ultimately dropped, and fell between the iris and cornea, shewing that it had not become embedded in lymph : from this situation it was removed by Dr. Alcock. Mr. Guthrie alludes to a case in which a particle of iron was lodged in the lens ; of course producing cataract, but not destructive inflammation.

These examples are not adduced for the purpose of inculcating that foreign bodies may be lodged in the structures of the eye, with impunity in all cases ; on the contrary, in general, severe inflammation and all its consequences is to be apprehended from such accidents, and no time should be lost in the removal of the injurious material. The detachment of minute particles driven into the structure of the cornea, is generally attended with considerable difficulty, whatever may be said to the contrary. The most frequent case is that of the



speck of steel separated from tools in chiseling stone or iron ; it is almost uniformly so small that it can scarcely be seen, except in particular light, even with the most powerful myopic eyes, and requires a lens of about inch and half, or two inch focus, for common eyes to ascertain its place, when the material is transparent, which is sometimes the case : particles of mica, silex, or glass, being occasionally blown by the wind into the eye, the detection of them is still more difficult. The removal can very seldom be effected by a blunt instrument, the particle is so firmly lodged in the structure of the cornea ; I have repeatedly tried to detach it by passing the curette gently, but firmly, over it without success : the point of the fine sewing needle, curved for cataract operation, should be struck beneath it with a single touch, and if possible not withdrawn till it lifts it from its place. In general the wound heals without trouble, yet I lately saw severe inflammation of the cornea extending to its anterior chamber and iris, from this accident. The removal of foreign bodies from the anterior chamber is of course more difficult : an opening of sufficient size must be made, with the extracting knife, in the margin of the cornea, taking care not to wound the iris or lens ; this, of course, allows the aqueous humour to escape, by which the difficulty is increased ; the iris falling against the back of the cornea, and even forming a fold round the foreign body, which, however, may generally be removed with the curette, or a pair of fine forceps. I once experienced much difficulty in the removal of a very small fragment of glass from the anterior chamber of one of our pupils, in whose hands a bottle had burst in the laboratory. It lay at first with one point touching the back of the cornea, and the other against the iris ; but as soon as the aqueous humour was renewed, it fell into the lower part of the anterior chamber, and the difficulty in its removal arose from the iris forming a fold around it.

ART. VI.—*Observations on Trismus Nascentium*. By ROBERT COLLINS, M. D., late Master of the Dublin Lying-in Hospital.

IN the last number of the Dublin Journal, there are some remarks by Doctor Breen on trismus nascentium, which he states he is induced to offer in consequence of the following observations made by me on this very fatal disease of infancy.

“With respect to the treatment of trismus nascentium I have no suggestions to propose, as I have never seen an instance where the child seemed even temporarily relieved by the measures adopted. Calomel has been tried in large quantity, often in small doses often repeated, as well as extensive frictions with mercurial ointment. I have tried frequent leeching along the spinal column, also repeated blistering over its entire length. Opium I have exhibited in many ways, both in large and small doses; also tartar emetic in the same manner, and at times both combined. I have tried tobacco extensively in the form of stupes, and injections of various degrees of strength, from one grain to the ounce of fluid, to five or more; besides the frequent use of the warm bath, oil of turpentine, tincture of soot, assafoetida, and many of the ordinary purgatives and stimulants, and all, as far as I could judge, without a shade of relief.”

To Dr. Breen's remarks I should not have considered any reply necessary, were it not that he states he cured *two* cases in private practice within the year 1834, and that Dr. Graves mentioned to him that he had cured another; he also, both in an indirect and direct manner, implies that my statement with regard to the great efficacy of ventilation, as recommended by the late Dr. Joseph Clarke, in lessening the frequency of occurrence of this disease in the hospital, was not supported by the facts adduced. Dr. Breen says, “I believe I am not *singular* among those who were concerned in the professional charge of

the Lying-in Hospital, Dublin, after the period of Dr. Clarke's mastership, in considering the opinion, that he had so materially diminished the occurrence and consequent mortality of trismus nascentium and *puerperal fever* by his system of ventilation, as a *hobby* of that respectable man. His system was not particularly scientific, as it consisted of three perforations in the upper part of the window frame, each an inch in diameter, and smaller ones in the upper part of the doors of the different wards, together with an aperture in the ceiling, without *any provision* for the introduction of a supply of pure air."

I cannot avoid expressing my astonishment on reading the first part of the statement, as coming from any one acquainted with the *facts* detailed by Dr. Clarke, or who had given his attention to the mortality of infants born in the hospital previous and subsequent to the improvement in ventilation. No man could controvert even a word of what Dr. Clarke has published as the result of the measures recommended by him; and perhaps there is not on record a more striking example of the *instantaneous* and happy, I would even add, enviable success of the efforts of any individual for the preservation of human lives. Why Dr. Breen believes he is not *singular* in his opinion so far as trismus nascentium is concerned, I know not; but this much I can state with truth, I never knew or heard of the most remote doubt on the subject previous to the opinion *now* advanced. As to *puerperal fever* which Dr. Breen has noticed in his remarks, it is not in any way alluded to in Dr. Clarke's Essay on *trismus*; and why is this *vast* and *important* subject included in the assertion made? As to the system of ventilation not being, in Dr. Breen's opinion, "particularly scientific," it is such, that to this day, *little alteration* has been suggested, though examined, to my knowledge, by the most competent judges with this object anxiously in view. "These improvements," Dr. Breen states, "were *first* detailed in a paper read before the Royal Irish Academy in the year 1789." Dr. Breen should have stated, that this valuable communication

made in 1789 by Dr. Clarke, was for the purpose of making known the *results* arising from *six years' experience* of the alteration effected by him in the ventilation of the hospital, so far back as 1783. Dr. Clarke *first* urged the importance of these alterations on the attention of the governors of the Lying-in Hospital of Dublin, when on the Continent in 1782 and 83, after visiting with much attention the London and Continental institutions of a similar nature. His correspondence on this subject with the then consulting physician of the hospital, Dr. Hutcheson, a copy of which is in my possession, is most interesting.

In the essay read before the Academy in 1789, Dr. Clarke states, "at the conclusion of the year 1782, of *seventeen thousand six hundred and fifty* infants born alive in the Lying-in Hospital of this city, *two thousand nine hundred and forty-four* had died within the first fortnight, that is nearly every sixth child. The disease, (he adds,) which carried off most of these children, perhaps nineteen of twenty,\* was general convulsions, or what our nursetenders have long been in the habit of calling nine-day fits, as constantly occurring within the first nine days after birth."

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\* The following letter was received by Dr. Clarke at Bordeaux in 1783, from Doctor Hutcheson.

MY DEAR SIR,

"I have thus long delayed acknowledging your very obliging and acceptable letter from Brussels, that I might inform you about the steps we are taking in consequence of your remarks. Doctor Rock, (the then Master,) Mr. Croker King, (the consulting Surgeon,) and I have had several meetings in order to have some digested plan to lay before the Board, as deliberations there are not generally the most advantageous to the despatch of business, nor do we think it prudent to divulge too publicly the disagreeable fact to which our attention has been called. We find that almost all the children who die are carried off by what the women call the nine-day fits, as always attacking the infants within nine days from their birth. That when once seized, all remedies hitherto tried have been found ineffec-



Such was the frightful mortality in our Lying-in Hospital previous to the alteration in ventilation. This it was which first induced Dr. Clarke to examine minutely the mortality of infants in all the similar institutions he visited, and which proved to him that the construction of our hospital must be defective to cause a mortality so immensely beyond what occurred elsewhere ; and instead of answering the original design of contributing to the preservation of young lives, had quite a contrary effect. Another circumstance which strengthened Dr. Clarke in this opinion was, that in the old hospital in George's-lane in this city, conducted by Dr. Mosse, the mortality was greatly less, as of 3,746 children born there, only 241 died within the *first month*, which is about one in fifteen and one-half.\*

Dr. Clarke in his treatise on this subject states : " my observations had the effect I wished with Dr. Hutcheson and the medical governors. Apertures of a considerable size (*twenty-four inches by six*.) were made in the ceilings of each ward, which have been since changed for air-pipes of six inches diameter.† Three holes of an inch diameter, were bored in an oblique direction through *each* window frame at top. The upper part of the doors opening into the gallery, were also

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*tual*. Your observations have been maturely considered, and in consequence of *them* we shall recommend the apertures in the ceilings, &c. &c. After stating the means to be adopted to improve the ventilation, he concludes "you may depend upon it that (as far as in my power) due attention shall be paid to your remarks, and that the governors shall be properly informed to whom this humane inquiry is owing.

" I am, dear Sir,

" Yours, very sincerely,

" F. HUTCHESON."

To Joseph Clarke, M. D.,

Bordeaux.

\* See Dr. Clarke's Observations, page 93, vol. iii., Transactions of Royal Irish Academy.

† These air tubes pass to the roof of the building, where there are several large *lowered* windows, so as to establish a *free* communication with the external air.

perforated with a great number of holes.\* By these means a *free* and *easy* passage was given to the air through the wards at all times, and executed in such a manner as to put it out of the power of nursetenders or patients to control. Since the above period also, the number of beds in the large wards have been reduced to seven, and several changes made in their construction which render them more airy, and more easily kept clean. The consequences have been favourable far beyond the expectation of every person concerned. The *nine-day fits* became visibly less frequent; and the abstract of our registry shews the fact, at first view, to the most inattentive observer. Of *eight thousand and thirty-three* children born since the above period, only *four hundred and nineteen* have died in the hospital; that is nearly *one* in *nineteen* and one-third, instead of the enormous mortality before mentioned. Had the mortality of infants been in this proportion since the commencement of the Dublin Lying-in Hospital, the number of children dead would have been somewhat about *thirteen hundred*, instead of the present number, *three thousand three hundred and sixty-three*; or in other words, *two thousand* lives would have been saved to the community. That this diminution of mortality is to be attributed to improvements in ventilation, can admit, I think, of little doubt. No other new mode of management has been of late practised to account for it; no other remedies used than such as have been tried a thousand times unsuccessfully.”†

Such are the *facts* Dr. Clarke had the happiness to be able to communicate to the Royal Irish Academy, in June 1789, as the *result* of his alterations in the ventilation of the hospital

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\* Sixteen, each *an inch* in diameter.

† Whoever will refer to an essay on this subject by Dr. Joseph Clarke, inserted in the third volume of the Transactions of the Royal Irish Academy, must be convinced that a more or less vitiated atmosphere contributes to its production. See a paper by A. Colles, M. D., in vol. i. Dublin Hospital Reports, on trismus nascentium.

in 1783; which, from that date to the present hour, have been productive of *increasing* and incalculable benefit.

Thus I feel justified in stating without hesitation, that by his valuable suggestions, 16,371 lives have been saved; as had the mortality of infants continued *one* in six till this day, (as from the time the hospital was opened up to 1783, a period of *twenty-six years*) the number of children dying of the 131,227, which is the total number born in the hospital, would be 21,871 instead of 5,500, as the hospital registry now shews.

In my seven years' residence in the hospital as Master, during which 16,654 children were born, 284 died, or in the proportion of *one* in *fifty-eight* and one-half; only thirty-seven cases of trismus nascentium occurred; of these fourteen were met with the *first* year, seven the *second*, three the *third*, three the *fourth*, three the *fifth*, three the *sixth*, and four the *seventh* year. This was in the proportion of one in 450 for the entire time; but for the last four years *one* in 666.\* Dr. Breen remarks, "does Dr. Collins's assertion, that in his mastership from 1826 to 1833, he reduced the occurrence of trismus nascentium from fourteen in the year, to three or four, support Dr. Clarke's views? Does it not confirm the suspicion of the imperfection of Dr. Clarke's system of ventilation? Also, does it not rather lead to the opinion, that there is a periodicity in the invasion of trismus nascentium, as we know there is in that of puerperal fever, and several other diseases?"

To the first of these queries I give the most decided answer in the affirmative, as I have elsewhere stated, the diminution in the number attacked after the second year is explained by the *additional* steps taken to free the wards from impure air.† Does not, I would ask, this prove the correctness of Dr. Clarke's views to the *utmost extent*, that in proportion as his

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\* Compare this statement with the fact before given, when every sixth child died, and *nineteen-twentieths* of the deaths were caused by *trismus nascentium*.

† See page 515 of my Treatise on Midwifery, for the measures adopted.

suggestions were more rigidly carried into effect, the disease became more nearly banished?

To the two last queries I give an equally decided negative. What proof has the writer given that there is a *periodicity* in the invasion of trismus? Are fourteen cases in one year, or *twice* that number, to be looked upon as such, when compared with the death of every *sixth* child born? Is not the *simple fact* that, even taking the *total number* of infants born in the hospital since first opened for the reception of patients, the deaths are *now* not more than *one* in *twenty-one* sufficient to prove the contrary? This, in my opinion, amounts to a demonstration, and exhibits a vast *progressive* diminution in the mortality ever since the improvements made by Dr. Clarke in 1783. To avoid doubt on this point, I have calculated the total number of children born, and the deaths *since that period*, and the result is, *one* death in every *forty* born. If any other proof be necessary, the still progressive decrease within the last seven years, viz. to *one* in *fifty-eight* and one-half is strongly corroborative of what is here given as my opinion.

Dr. Breen, alluding to my assertion, that 16,371 lives have been saved, states—"there is an error in the elements of this calculation, fatal to its value as a statistical fact. It being assumed in the calculation, that the length of time the patients remained in the hospital was equal, or nearly so, at all periods since its foundation, which is a mistake, as the institution was above twenty years established before 1000 women were delivered in any single year. In these early years, the patients were frequently not dismissed for nearly double the time at which, when the building became more crowded, it was necessary to discharge them, as *I ascertained* when assistant, from examination of the registry. The number of children dying then in the institution, according to the general law of mortality in early life, now demonstrated, was necessarily greater than in after years, when they remained little more than half the time in the hospital."



This objection is noticed in Dr. Clarke's Essay, see p. 99, as above. After stating the *instantaneous* reduction in the mortality of the children born subsequent to the alteration in ventilation, he adds: "I know it has been objected, that it may be owing to their mothers now remaining a shorter space of time in the hospital than formerly. In order to ascertain whether this be a *fact*, I have for the last two years had an entry made of the day on which each infant died; the number dead has been 114, and they have died on the following days after their birth, viz. Thus two died on the first day and so on :

Number of Day.	1	2	3	4	5	6	7	8	9	10	12
Number of Patients.	2	10	5	6	18	37	24	5	3	3	1

The following table shews the length of time each of the 284 who died during *my residence*, survived their birth. See *Observations on Midwifery Treatise* for the period, eighteen of the 284 lived :

	MINUTES.			HOURS.																DAYS.													
Length of time	5	10	15	1	2	3	4	5	6	8	9	10	11	12	13	17	30	36	1	2	3	4	5	6	7	8	9	10	11	12	14	18	37
No. of children	15	3	7	5	7	7	2	7	1	9	3	2	3	2	14	5	3	1	4	11	19	31	11	20	25	13	4	3	1	1	1	1	1

Hence it is obvious, that of the 380 deaths, 345 occurred within the *seventh* day, 364 within the *eighth*, and 370 within the *ninth*, leaving only *ten* deaths subsequent to the ninth day. Thus we clearly prove the *fatal period* to be within the average time of the mother leaving the hospital, *even* when both the *child* and *herself* are well; as *no patient* is *ever* permitted to leave the institution until this be the case, no matter what length of time may be necessary, where it is practicable to detain her. The calculation therefore, as a statistical fact, is, in my opinion, *little* affected, especially when we bear in mind, (in connexion with the statement here given,) that, during the

period the infants remained *longest* in hospital, nineteen of every twenty died of *nine-day fits*, which invariably occur before this day.\* I feel, therefore, that the importance of ventilation and cleanliness is most satisfactorily confirmed by the *facts* detailed; and that, from the result of my own experience, I am called upon to *urge* attention to these subjects, not only as an “*advantage*” in the construction of hospitals or other buildings, where *young creatures particularly* are to be the inmates, but as *vitally necessary*, and that “*too much benefit cannot be attributed to such efforts.*” I have little doubt that by *strict adherence* to free ventilation, in conjunction with *extreme vigilance as to cleanliness*, so as to entirely destroy and prevent *an accumulation of foul or heated air* in the wards, this frightful disease may be nearly banished from lying-in hospitals.

As to the treatment of trismus nascentium, *as met with in hospital*, I can add nothing to the observations above noticed, nor have I ever witnessed more than *one* instance out of the institution, and that in a *wretched hovel*, when I was assistant in the hospital. The report of *two* cases of recovery by Dr. Breen, in his private practice in the year 1834, and *one* by Dr. Graves, as given in the remarks of the former, appears to me to require some explanation. In a disease the cure of which must prove so *singularly interesting*, ought not Dr. Breen to have *detailed* the cases with the *utmost minuteness*, so as to enable his professional brethren to form their own opinion? This would have added great value to the statement, as the complete success of the *same remedies* in *his* hands, which have so *repeatedly* as completely failed in those of others, would seem to leave room for suspicion that the attacks were as widely different in character. Dr. Breen states, “Mrs. P.’s

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\* See, also, the mortality of infants in the original Lying-in Hospital, George’s-lane, as above, viz. *one* in fifteen and one-half, when the patients remained *one month* after delivery.

child, a male, her first, was a preternatural case, the breech presenting ; there was some difficulty in establishing respiration after the delivery, and as the powers of life were languid, a grain and a half of calomel was given immediately after its birth." These circumstances tend much to strengthen the suspicion, as it is well known that those children who suffer from compression in the birth, so as to cause respiration to be established with difficulty, are liable to severe convulsive attacks. It would have been more satisfactory had Dr. Breen given the *total* number of cases he met with even in the *one* year, as the *unsuccessful* cases must have been numerous ; agreeing, as he does with me, in its being "*a very fatal disease of infancy*." If we suppose *one* in seven cured, Dr. Breen must have had as many cases of trismus nascentium in the year, as occurred in the hospital for the last *five years* of my residence, during which *eleven thousand three hundred and twenty-three children* were born.\* This calculation is necessarily a surmise on my part ; but even if Dr. Breen met with only the *two* cases cured, in one year, I should consider it a very extraordinary occurrence ; as even in the hospital for *four* successive years but *three* cases were met with in each year, and about 2500 patients were delivered annually. Are not these circumstances also strongly calculated to create a doubt as to the *exact similarity* of the cases *cured*, with those which have proved *invariably fatal*, under the care of *every* physician who has had charge of the hospital ? Should not Dr. Breen have stated the result of *his own* observation and treatment of this disease, when assistant in the same institution for *three years*, where he had every possible opportunity of seeing the

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\* In order to ascertain the result of their observation in the treatment of this disease in hospital, as well as the frequency of its occurrence in their private practice, I addressed Dr. Labatt, (formerly Master of the Lying-in Hospital,) and Dr. Evory Kennedy, (the present Master,) by letter ; they have kindly permitted me to publish their reply.

disease in its unequivocal form ? This, I think, was at least an oversight on his part, when commenting on mine.

Dr. Breen states, " My *panacea* consists in small doses of laudanum joined with calomel, and castor oil, to promote the purgative effect of the latter. When the complaint develops itself, I order *one* drop of laudanum in *an ounce* mixture ; and of this I direct a tea spoonful every second hour, until the patient appears to be affected with the narcotic properties of the opiate, which often happens after the third dose, then the mixture is given less frequently. *A grain and a half* of calomel is also administered every fifth or sixth hour up to the third time ; afterwards it is not given more frequently than *twice* or *three* times in the twenty-four hours, with intermediate doses of castor oil, in the quantity of a large-sized tea spoonful, sometimes joined with a third part of spirits of turpentine."

These are the medicines which I have declared to have failed in almost *every variety of dose*, and which, above all others, have been *most frequently* resorted to. I certainly did not give so *minute* a proportion of laudanum as the *eighth* part of a *drop* ; my *ordinary* dose was the *half*, *third*, or *fourth* of a *drop* every one, two, or three hours, and the quantity of calomel was usually *half a grain*, or a *grain* every *hour*, or *second hour*, so long as the child could swallow ; and both castor oil and oil of turpentine I have seldom failed to administer freely, both by the mouth and rectum, where it was practicable ; but often this is not possible, as every effort to introduce any kind of fluid into the stomach fails, and greatly aggravates the spasmodic attack when the disease becomes fully developed. I was deeply interested in the treatment of this disease ; and when assistant, have from hour to hour watched its progress, remaining almost constantly in the ward, and administering every particle of medicine myself, at the same time diligently supplying it with suck alone ; so long as when given by drops the infant could swallow, and when this failed, endeavouring by nutritious injections, in small quantities, to



support the strength. In every instance I have been disappointed. How often have I witnessed the utmost attention of my assistants, from the very first symptom of the attack, followed by no better result. Had I not these numerous and incontrovertible proofs, in my own experience, of the fatal course which this disease runs in hospital, without being even apparently checked in its progress by treatment, often *as nearly as possible similar* to that recommended by Dr. Breen, and in many, varied in every possible manner our united thoughts could devise or suggest, I might have looked upon the cases cured as alike in character; but with such evidence as my long residence in the hospital afforded me, I feel justified in doubting their similarity; nay, I will even state, that from the *diligent* and *extensive trial* given to the medicines above recommended, (if administered in the manner and proportions pointed out,) it is my conviction the result will be unfavourable.\*

I have not yet noticed the case reported in Dr. Breen's remarks, as cured by Dr. Graves in conjunction with Dr. Plant. The writer, however, could not have inquired accurately into its history from either of these excellent practitioners, otherwise he would not have added it as a *third* case of recovery from

\* Since Dr. Breen's publication, I applied to Dr. Every Kennedy, the present Master of the hospital, as to the result of his success in the treatment of trismus nascentium. As both his efforts and mine were alike unsuccessful, it was at once agreed, that Dr. Breen should have instant notice of every case met with in the hospital, and that under his superintendence, the treatment pointed out by him should be *scrupulously adopted*. This, in my mind, will *test* the correctness of the opinion I have expressed, which, if not based on practical experience, I would not have ventured to put forward.

One case only occurred since this arrangement, and through the kindness of Drs. Kennedy and Breen, was treated accordingly. The infant died in less than thirty hours: of course no conclusion can be drawn from a solitary case. Dr. Breen's plan, however, will be fairly tested, and the final result of these investigations Dr. Kennedy will, at some future period, report to the Editor of this Journal.

*trismus nascentium*, as the child, when first visited by Professor Graves, was *nine days old*, and Dr. Graves saw it but *once*.

Dr. Breen concludes thus: "Though at present believing the diminution of *trismus nascentium* in the last years of Dr. Collins's management of the Lying-in Hospital, to be attributable rather to what I have ventured to denominate its *periodicity* than to *his improved system of ventilation*; should succeeding years afford as few cases of *trismus nascentium* in that hospital as those referred to with honourable pride by him, I will hail his improvements in ventilation as valuable triumphs in science, over unmanageable morbid actions."

I trust the striking and indisputable *facts* adduced, will appear at least to justify my assertions with regard to the *preeminent utility* of *ventilation* in banishing from our hospital a disease so cruelly fatal to its tender inmates; and that the *vast* and *progressive diminution* shewn in its occurrence in the institution for a period of *fifty years*, in like manner justifies me in denying that there is any *periodicity* in the attack.

I would conclude in nearly similar language with my commentator; that, though at present believing the two cases of *trismus nascentium* cured by Dr. Breen as totally different in character from that disease as met with in the Lying-in Hospital, should succeeding years prove to us the efficacy of the treatment, as in the instances referred to with honourable pride by him, whilst I must hail his improvement as a valuable triumph, yet I will ever esteem *prevention* better than cure.

The following are the letters before alluded to, which I received in reply from Drs. Labatt and Evory Kennedy. The importance of these communications, will be duly estimated by all acquainted with the extensive opportunities these physicians have had of treating *trismus nascentium*.

"1, Rutland-square, January 28th, 1836.

"MY DEAR SIR,

"I should feel more satisfaction in replying to your note on the subject of *trismus nascentium*, if I had

anything new or useful to communicate on the nature or treatment of that fatal disease.

“ During ten years and a half that I was resident in the Lying-in Hospital, within which period 28,894 women were delivered, I witnessed 16 or 18 cases of the disease on an average annually. I gave a fair trial to all remedies of repute, to calomel, opium, turpentine, musk, camphor, castor, assafoetida, and tobacco, I tried local bleeding, blisters, rubefacients, mercurial frictions, the hot and cold bath, and change of air, but all without effect. I sometimes, indeed, gave myself credit for removing symptoms which were considered strongly indicative of the approach of the disease, and a few infants who were deemed by myself, and some of the most experienced nurse-tenders as seriously threatened, were apparently saved by being removed from the hospital, but in no case, when the disease was fully formed, with tetanic countenance, locked jaws, and tetanic tension, and rigidity of the muscles, did I meet with a recovery.

“ On looking carefully over the register of my private practice which has been rather extensive for nearly *forty years*, I find but two cases of trismus noted, both of which terminated fatally. I therefore conclude that it must be rarely met with out of hospital, at least in this city. I consider it quite unnecessary to advert to the various convulsive attacks occurring in infants from malformation of parts, and the many sources of irritation to which they are liable, such complaints can scarcely be confounded with genuine trismus nascentium.

“ I have reason to believe that trismus nascentium, occurred more frequently in our hospital formerly than of late years, and it appears from the register, that the health of the hospital with respect to the infants, was greatly promoted by the judicious means adopted by the late Dr. Clarke to ventilate the wards. Soon after he was connected with the Lying-in Hospital, being forcibly struck with the great mortality of infants which prevailed therein, he entered upon an investigation

of the subject. Dr. Clarke made strict inquiry as to the comparative mortality of infants in different situations, and informed himself of the internal structure of other Lying-in Hospitals, and the result was, a conviction on his mind, that the great mortality of infants in the Dublin Lying-in Hospital, was mainly attributable to want of proper ventilation, and consequent vitiated state of its atmosphere, to remedy which he had apertures made in the doors, windows, and ceilings of the wards, and the number of beds in each ward was lessened, and the canopies of the beds were removed to render them more airy. By these improvements, which were effected in 1783, a free circulation of pure air through the wards was insured, and the results were salutary, even beyond the Doctor's expectations. *Vide abstract from registry for 1781, 1782, 1783, and 1784.* The importance of Dr. Clarke's discovery was duly appreciated by every one concerned, and the Governors of the hospital evinced their gratitude by a suitable vote of thanks.

"In the winter of 1819 and 1820, the puerperal fever being prevalent in the Lying-in Hospital, I determined on making some alterations so as to render more perfect the ventilation, and, having this object in view, proceeded to examine the upper part of the building with an intelligent and scientific friend, when we found that the tubes which had been substituted for the apertures made in the ceilings by Dr. Clarke, to carry off the vitiated air terminated under the roof, which mode of ventilation I still further improved, by having additional tubes made to pass through the roof and communicate with the external air. The alteration was considered at the time by those best acquainted with the subject of ventilation, to be of great importance, and I entertain no doubt, it has materially contributed to improve the general health of the hospital.

"I am, dear Doctor,

"Your's faithfully,

"SAMUEL BELL LABATT.

"*Doctor Collins, &c. &c.*"



" Lying-in Hospital, Jan. 27, 1836.

" MY DEAR SIR,

" In answer to your inquiries, I beg to inform you, that the proportion of what I should term cases of true trismus nascentium, occurring in the Lying-in Hospital since my appointment to its charge as Master, average between six and seven annually, and they have, without a single exception, terminated fatally, although every variety of treatment that could be devised has been tried with them. I have, however, met with convulsive attacks both in hospital and private practice, which, although much resembling trismus, were essentially different, and quite under the control of medicine. These may occur as the effect of difficult births from cerebral congestion, or as symptomatic of deranged bowels; nor are they like trismus confined to the first nine \* days, but may be observed at an indefinite period after birth. My attention having lately been called to this subject by a paper of Dr. Breen's, in which he reports two cases of trismus cured, I readily acceded to your wish, from my anxiety to avail myself of any plan stated to have proved successful in the hands of others, and requested his superintendence in putting the treatment recommended by him into effect, which he was good enough to afford me; as but one case has since occurred, of course no conclusion can be drawn upon the subject, but the fairest trial shall be afforded to Dr. Breen's plan under his own directions, and the results promulgated at a future period. It appears to me, however, that there is a misunderstanding on the subject. You have accurately related the result of your observation in true trismus, which is so very rarely met with out of hospital, and which has, as you state, proved invariably fatal. Dr. Breen on the other hand, has described an equally distinct form of disease, which, although it bears a

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\* Of sixteen cases of trismus, the total number noted in my case book, I find none attacked later than the sixth day from birth.

strong resemblance to that alluded to by you, must appear at least to those accustomed to witness trismus in hospital, quite a different disease. What confirms me in this opinion is, that Dr. Breen does not deny the fatality of the disease as seen in hospital; on the contrary, he fairly stated to me, when in attendance on the case above alluded to, that seven out of eight cases of that form of the disease terminated fatally.

“ In answer to your query as to the effect produced by Dr. Joseph Clarke’s improvements in the ventilation of the hospital, I can only say, that this matter is not one of opinion, but of fact; which the records of the hospital incontestably proved forty years ago; and which every succeeding year has if possible conclusively verified.

“ As for my opinion on the subject, if we except Jenner, I know of no physician who has so far benefited his species, making the actual numerical calculation of human life saved the criterion of his improvements.

“ I remain, your’s very truly,

“ EVORY KENNEDY.

“ To Robt. Collins, Esq. M. D.

“ &c. &c. &c.”

ART. VII.—*Account of a Case in which Death ensued in consequence of Nitric Acid having been poured into the Ear; with a second Case, in which the Epiglottis was divided in an attempt to commit Suicide.* By J. MORRISON, M. D., Member of the Royal College of Surgeons, London, and Surgeon to the Newry Dispensary and Fever Hospital.

Catherine O’Neill, aged 40, of a naturally good constitution, but latterly addicted to occasional drunkenness, had a quantity of nitric acid poured into her right ear, on the 6th of June, 1833, while in a state of intoxication.

I saw her about a week afterwards, when she stated that she and her husband were in the frequent habit of quarrelling, that she was raised from her sleep on the day above mentioned,

by a ſevere burning pain in the right ear, and that this continued, though in a much milder degree, for two or three days, but had then altogether ſubſided; alſo that ſhe has ſince been very weak, unable to ſtand without aſſiſtance, and confined to bed; but has had no thirſt, pain of head, nor heat of ſkin. The daughter of this woman ſtated, that her father on coming in, and finding her mother in bed drunk, went out, and returned in a few minutes, when he poured a great part of the contents of a phial which he had in his pocket into her mother's ear, and that the ſides of her face and neck were immediately changed to a yellow colour, which could not be waſhed off.\* She alſo ſtates, that in ſix days afterwards, a thick, ſtringy, membranous ſlough was detached from the auditory foramen, and that this was followed on the ſubſequent day by a very copious hæmorrhage, probably to the amount of twenty ounces; and that on the day after this, her mother totally loſt the uſe of her right arm, and was in ſuch a ſtate of debility as to make the family expect her immediate diſſolution, and cauſe her father, expecting that he would be committed as his wife's murderer, to perpetrate the act on himſelf which will be afterwards mentioned.

There were now, the eighth day after the receipt of the injury, ſeveral ulcerated ſpots over the ſurface of the ear, particularly in the choncha, and the lobe ſeemed to have altogether loſt its vitality. Part of the face and neck was alſo in a ſtate of ulceration, there was a trifling ichorous diſcharge from the meatus externus, and the ſenſe of hearing was aboliſhed. There was no headach, nor was there any apparent febrile ſymptoms. Pulse eighty-eight, ſmall, weak, and intermitting, the ſkin's temperature below the natural ſtandard; there was no ſtupor, ſtertor, nor vertigo, the debility ſeemed alone to demand attention.

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\* It was diſcovered that O'Neill, the huſband, procured Nitric acid when he went out at the time ſpecified.

Notwithstanding the plugging of the ear, and the application of astringent lotions, together with the internal administration of tonics, animal broths, &c., the hæmorrhage returned to some extent, almost daily, for about a month, when it ceased, and the general debility during that time increased. A fortnight after the beginning of the illness, the right side of the body, the use of which, from the onset, seemed gradually declining, was so deprived of its usual power, and its different parts so affected with frequent tremulous motions, which even in bed were quite apparent, as to make it evident that one half the body was labouring under paralysis agitans. This latter affection continued about five weeks, when a considerable amendment took place, both as respects it and the general state of the system. The muscles of the right side were now more under the dominion of the will, and the tremulous motions had very nearly subsided. The woman at this time determined on seeing her husband, who was in hospital here, and by the support of two persons, she walked through several streets to him; but on her return home, she felt greatly exhausted, sunk into a state of general prostration, and so continued till her demise, which took place about six weeks afterwards. The side which had been subjected to the paralytic affection, with the exception of the arm, which remained totally deprived of its use, was for several weeks before her death quite free from the tremulous motions, and as capable as the other of the voluntary. Articulation remained distinct, and the mental faculties were unimpaired; the powers of the system at large, more than of individual parts, seeming to have undergone such thorough decay. There was, however, some cough, with muco-purulent expectoration, and night perspirations.

Dr. Mollan and I examined the body after death. There was much emaciation, the lower part of the right ear was away, a cicatrix occupied the remaining portion, and the meatus externus was much wider than natural. The dura mater presented no unusual appearance except in one spot, about the diameter of a sixpence, opposite the foramen auditorium internum, which



seemed of a somewhat darker colour than it should be, but it was not thickened nor adherent on either side. There was not effusion of serum, lymph, nor pus, but a clot of blood about the size of a pea was found lying exactly at the entrance of the meatus internus. No morbid appearance could be discovered in any part of the brain, save some semblance of ramolissement of that portion of it which corresponded to the petrous portion of the right temporal bone, and even this was very conjectural. The right petrous bone itself, however, was completely carious, and the seventh nerve of this side, when compared with that of the other, *seemed* to have undergone a degree of wasting. These were the only appearances worthy of remark which the examination of the head had elicited. The lungs presented nothing peculiar.

This case seems to me interesting in several points of view, but particularly the following: First, in the very novel and singular mode which was resolved on to effect death. Second, in perfect paralysis of the arm, and in paralysis agitans of the side, occurring conjointly and at the same side with, and following such an injury as is mentioned; and these coming on after copious evacuations of blood, and subsiding (the paralysis agitans was totally done away with very soon after the hæmorrhage from the ear ceased) as the blood subsided.\* And third, in such extensive caries of the petrous part of the temporal bone, without the sensation of pain, or of almost any symptom either before or after death, to denote inflammatory action either of it, the brain, or its membranes.

CASE II.—On the morning of the 14th of June, 1833, John O'Neill, a barber, aged forty-four, husband of the woman whose case formed the preceding subject. On the eighth day after having poured the nitric acid into his wife's ear, supposing she

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\* Would the detriment which the portio mollis of the seventh must have received from the action of the nitric acid, and the communication of the affection to the calamus scriptorius or corpus restiforme, to both of which we know this nerve is connected, throw any light on the pathology of paralysis agitans?

was dying, he made a dreadful gash with a razor into his own throat between the os hyoides and thyroid cartilage.

I saw him very shortly afterwards, and had him conveyed to the hospital. The wound extended very deep, and so far across the neck, as to lay bare both carotid arteries, though neither was injured. Speech was altogether suspended when the wound was open, but returned, though nearly inaudible, when closed, and air passed through the wound freely. The surface of his body was cold, his face pallid, pulse scarcely perceptible, and his shirt, waistcoat, &c. saturated with blood. The hæmorrhage had then ceased. He was greatly tormented by cough. The wound was sponged and cleansed when these vessels commenced to bleed anew. These were secured, the edges of the wound approximated by means of four sutures and adhesive straps, and the patient placed in bed with his head well raised by pillows. When visited in the evening, he was labouring under a constant suffocative cough, his deglutition was most difficult, and part of his drink came through the wound. The tube of a stomach pump was attempted to be passed into the œsophagus in the morning, so as to give him his drink, &c. by this means, but without avail, as the most violent cough and sense of suffocation were induced whenever the extremity of the instrument came near the seat of the wound. An attempt was now made to pass an elastic tube, but with a similar result; so that any drink which he got down, and which I believe was very little, if any at all, was taken in the ordinary way. On the next morning, the cough and difficulty in deglutition were fully as urgent as on the day preceding, and as these were most harassing, and the drink continuing to escape through the wound, I resolved on opening this anew, fearing I had included a portion of the mucous lining of the trachea in the ligatures, as I could in no other way account for such a continued cough. On removing the dressings and sutures, I found the mucous membrane had been perfectly free from both, and could not discover any thing either by touch or vision

which would be likely to excite ſuch ſeeming irritation. I again put in three ſutures, kept the wound closed by raiſing the head ſo as that the chin would reſt on the upper part of the cheſt, retained it in this poſition by bandages, and dreſſed it, with the view of diminiſhing the ſeeming irritability of the part, with ſmall bits of lint which had been made a little moiſt with tincture of opium. In the evening the haraſſing cough ſtill continued, but he then could ſwallow ſome liquid put into his mouth imbibed by a bit of ſponge, but from the receipt of the injury to this time, he ſaid he was quite certain no fluid had entered the œſophagus. The next day, both the cough and difficulty in deglutition had in ſome meaſure abated. The opium dreſſings were perſevered in. From this period all the uneaſy ſymptoms gradually ſubſided, the wound commenced to granulate, the cough became much leſs urgent, and deglutition was performed with tolerable eaſe. He was diſcharged from hoſpital about four weeks afterwards, the wound being then healed, and his health nearly reſtored; ſome cough, hoarſeneſs, and a low croaking voice, merely remaining as untoward ſymptoms. About three months afterwards, this man was admitted into hoſpital, on account of an inflammatory affection of the bladder; this was accompanied by a low typhoid fever, and quickly ſucceeded by death.

On inſpecting the appearance of the parts connected with the former injury of the throat, it was found at the *poſt mortem* examination, that the epiglottis was deficient in almoſt the entire of its left lateral half; that its edge at this ſide was thick and marked by an indentation of about a line in depth, and that the arytenoid cartilage of the ſame ſide was conſiderably enlarged, and as it were forced over towards its fellow, as if to ſupply the place where the epiglottis was wanting.

This caſe, which was ſeen by ſeveral of the medical gentlemen of this town, alſo appears to me intereſting, not only in giving us the ſymptoms of an injury of the epiglottis, but in ſhewing that diſeaſe may act to a great extent, even on this

important organ, without such serious consequences ensuing, as might, at first sight, be naturally imagined. From the constant cough, sense of suffocation, inability to swallow, and almost total loss of voice, which immediately supervened the wound of the throat, I think it may clearly be inferred, that the epiglottis had been injured, and as its left lateral half was found wanting at the *post mortem* examination, I presume it may also be inferred, that the injury consisted of an incision extending from the left side of its base, in a somewhat longitudinal direction, probably not so far as to cause amputation in the first instance, but so far as to incapacitate that side from maintaining its vitality, and of course causing it soon afterwards to slough off. Wounds of the epiglottis are very rare, and it is difficult to conceive how the present one was inflicted, unless we suppose the most determined efforts at self-destruction.

ART. VIII.—*Pathological Observations on the Brain and Nervous System.* By ROBERT LAW, M. B., Fellow and Censor of the College of Physicians, one of the Physicians in Ordinary to Sir Patrick Dun's Hospital, &c.

THE morbid conditions of the brain and nervous system have latterly engaged a considerable share of the attention of the physician: and if the degree of importance of an organ or apparatus of organs in the economy, is to be regarded as a just measure of the consideration to which it is entitled, it will be readily admitted that the brain and nervous system have a fair claim to such a distinction. While many have laboured, and profitably laboured, in this deeply interesting field of pathological research, and while rich and valuable have been the results which have proceeded from such labours, still it must be confessed, that much remains yet to be done both by the anatomist, the physiologist, and the pathologist. Anatomy has gone far towards unravelling the proper structure of the



cerebral organ, and physiology has kept pace with it, and appropriated to its own uses its discoveries ; yet both must proceed much further than they have gone, ere we can look to them for an explanation of the multiplied and varied forms of disease with which this system daily presents us. The subject is surrounded with many difficulties, some of which would seem to be almost insurmountable. Although it opens to us a boundless range of morbid modifications, arising out of the relations existing between the nervous system and all the other ingredients of the animal economy, and the influences whether direct or reflected consequent upon such relations : still its vastness, so far from giving rise to despair, should stimulate the anatomist to push his investigations further, and the physician to contribute more largely the accumulated results of his candid and unprejudiced observation, in the hope that in process of time we may acquire a stock of material, with which to raise a more complete structure of substantial information. No subject of pathology has been more the matter of crude speculation, than the affections of the brain and nervous system. Very few cases have been considered sufficient substratum for a theory promulgated with all the authority of a well established fact, but whose flimsy pretensions experience was soon to set aside. We could adduce as an example, how premature was the attempt to connect in the constant relation of cause and effect, paralysis of the upper extremity and diseases of the opposite optic thalamus, and paralysis of the lower extremity and diseases of the opposite corpus striatum. Nothing is more injurious to a science, whose conclusions are to be drawn from an accumulation of facts, than a precipitate hurry to generalize, before the facts are sufficiently numerous to furnish adequate data for general deductions ; and no science has suffered more from this impatience, and from the over-weening desire of the éclat of a new discovery than medicine. Many a sickly production has been indebted for its untimely birth and speedy dissolution, to the feverish anxiety to be the first to broach a

new doctrine or theory. It must be confessed, that no science has been less fairly dealt with than medicine ; none whose records are read with more distrust and suspicion, from the too frequent want of candour and truth with which they are impressed : and surely none deserves better at the hands of its votaries, as none administers more richly to the gratification of the intellectual and moral man.

*Extensive Cerebral Hemorrhage terminating speedily in Death ; Ossific Disorganization of the Arteries.*

Ann Nowlan, æt. 43, married ; was admitted under my care in Sir Patrick Dunn's hospital, said to have been labouring for some days under fever, for which she got from a physician cordial diaphoretic medicines ; when she became my patient she presented the following symptoms :—distressing supraorbital headach ; pulse 100, weak ; tongue loaded with a dark brown crust at base and in the centre, red and glazed at points and edges ; stomach irritable and painful on pressure ; no diarrhœa ; skin of natural temperature ; no petechiæ or duskiness ; great depression of spirits.

Hirudines duodecem epigastrio. Haustus effervescens c. tinc. opii. Lotio frigida fronti Pediluvium.

These means had neither the effect of relieving the headach, nor the sickness and irritability of stomach. On closely examining and weighing well the symptoms, we were induced to regard the headach as the first and principal link in the morbid chain, and the other complaints as its effects. What led us to adopt this opinion, was a strength of voice and power of moving herself, apparently incompatible with her other symptoms, as characteristic of low fever. Acting upon this view, we had leeches applied to the left temple, to which she principally referred her pain ; she derived temporary relief from their application. We next tried blisters, which also relieved for the time. We now determined to bring the system under the influence of mercury, and for this purpose directed a combina-

tion of calomel and James's powder. No sooner had the mouth become sore, than the headach entirely ceased, and the loaded tongue became clean. This complete exemption from pain only lasted so long as the mouth continued sore, for no sooner had this evidence of the mercurial influence passed by, than the pain returned, although much less constant and greatly diminished in intensity. We again resorted to the mercury, which removed the pain never to return. We forgot to observe, that when the pain did return, the tongue resumed the loaded appearance which it originally presented. She now, for the first time, directed our attention to the failure of the sight of her left eye, of which she said she had the perfect use when she came into hospital. On examination, we found that the pupil did not respond to the stimulus of light, that it was, in fact, permanently dilated. We applied repeated blisters, and sprinkled some with strychnine, but all to no purpose, the eye had become quite amaurotic. She had now enjoyed a long exemption from headach, and only seemed to labour under great depression of spirits, when she was suddenly seized with a fit. She was found in a state of complete insensibility: the respiration extremely laboured but without stertor; the pulse weak and slow; face not flushed; no throbbing of the carotids; the right pupil not more fixed than the left, which we before remarked to be permanently dilated; this occurred late in the day, after we had made our visit. The temporal artery was opened, and about ten ounces of blood were drawn in a full stream, when the pulse began to fail. A compress and bandage were immediately applied, but the bleeding was with difficulty restrained; the face now flushed, the carotids began to pulsate strongly, and while a turpentine enema was about to be administered she expired, about two hours from the time of the seizure.

*Examination of the Body.*—In dividing the scalp a considerable quantity of black fluid blood issued from the divided vessels. The superficial vessels of the brain were very full and congested. When the brain was removed from its

situation, fluid blood, to the amount of not less than six ounces, was found effused at its base. A large coagulum occupied the place of the *locus perforatus*, or floor of the third ventricle, which seemed to have been completely destroyed; both crura cerebri seemed to have been elongated and displaced, and apparently had their natural consistence diminished by the violence they had sustained. The lateral ventricles were filled and greatly distended, with two clots of blood which lay in contact, in consequence of the destruction of the septum lucidum. The right optic thalamus was perfectly natural; the left contained a clot in its softened broken down centre. A large coagulum was found in the middle of the great transverse fissure of the brain, inclining rather more towards the right side; this seemed to establish a kind of connexion between the blood effused into the ventricles and that at the base of the brain. The basilar artery was healthy, but the middle arteries of the brain presented many points of ossific disorganization. The softened structure of the left optic thalamus, which was in an actual state of ramolissement, would lead us to suspect that this was the original disease manifesting itself by the headach, and subsequently by the amaurotic condition of the left eye. (We should have remarked that we could discover no appearance of disease in the optic nerves.) Wherever else the brain was injured in its texture, the injury was evidently the direct and immediate effect of the violence of the *coup de sang* lacerating its structure, or of the effused blood by its quantity distending and stretching beyond its powers of resistance the portion of the organ into which the effusion had taken place.

This case presents us with many points of deep interest and practical importance. In the first place, it suggests to us a caution in our diagnosis, and teaches us that when any disease exhibits a want of harmony and correspondence in its symptoms, we should not be too precipitate in our decision, but should patiently investigate the inconsistency, and see how far it be actually compatible with the diagno-



sis which a more superficial examination would lead us to form. The physician who first saw and treated the case, did certainly mistake its nature ; and we must admit that when we review the symptoms, there were, amongst them, some calculated to lead into error. In the first place we would point to the loaded state of the tongue, which is unquestionably one of the most constant features of fever ; and when there were, in addition, the usual concomitants of headach, prostration of strength, and moral depression, they seem in some degree to palliate the mistake. We had seen this condition of the tongue in affections of the head, sufficiently often not to be misled by it ; and have been surprised, on pointing it out to more experienced practitioners, to find that it had hitherto escaped their notice. We find Andral, in his lecture on encephalitis, in speaking on the possibility of mistaking this affection for typhoid fever, lays down a clean tongue as one of its distinguishing marks : our experience, on the contrary, leads us to enter our *caveat* not to attach an undeserved value to an appearance of this organ, which, so far from helping us out of our difficulty, is calculated to draw us farther into it. We would especially direct attention to the removal of the pain when the system became affected with the mercury, and its absence as long as the mouth, continuing sore, gave us evidence of the continuance of the mercurial influence. The nature of the apoplectic seizure was such, that nothing could even afford a temporary check to the fatal termination ; yet we would here suggest a caution against large bleedings at the instant of, or shortly after, such seizures. The system is at this moment under the influence of the shock, and can as ill bear large bleedings, as it can when shock is produced by other causes. We have not unfrequently observed the complete failure of the pulse from such practice ; and often have been obliged to employ strong stimulants, whose exhibition was indicated by a weak, feeble, irregular pulse ; rendered so by, if not unseasonable, at least, excessive depletion. Before resorting to bleeding, we would advise

the application of the stethoscope to the region of the heart, in order to ascertain the state of the circulation, and to act according to its indications. Of course the urgency of the case will press upon us the necessity of the immediate employment of the other means, such as leeches and cold lotion to the head, strong purgative injections, irritants to the lower extremities. Were we arrived at that accuracy of diagnosis to be able, in all cases, to distinguish between cerebral hemorrhage and congestion of the brain, we should feel less difficulty in expressing a positive opinion with regard to bleeding. If we were sure that it was congestion we had to deal with, we should not be deterred by a weak and irregular pulse (which we not unfrequently meet with in these cases) from bleeding, and in most such cases the pulse acquires a steadiness and firmness during the operation: but the exact correspondence of the symptoms of these two forms of disease in many instances, creates the difficulty. We find in this case a modification of the vessels of the brain, which has ever been regarded, at least, as a favouring cause of cerebral hemorrhage. Such a modification, however, is more frequently met with in persons of a more advanced age. We were unable to learn any thing connected with the previous history of this individual, with which to connect the origin of her disease. She admitted to having been long subject to headach.

### *Hemiplegia.*

James Conolly, æt. 35, ostler, admitted into hospital July 14, 1835. He had been ten weeks in Whitworth Hospital for inflammation of the left eye, which ended in its complete disorganization. He left the hospital five weeks since, feeling himself quite well, but weak from the antiphlogistic treatment which had been unsparingly employed. A fortnight ago, without any premonitory symptom whatever, on attempting to get out of bed in the morning, he found that he had completely lost the use of his right side. At present the right arm and leg have no power of motion, and when raised and left unsupported, they fall like inanimate matter. Their sensibility is

considerably diminished ; the mouth seems to be drawn to the left side, the tongue does not appear to deviate from the median line ; pulse fifty-four, very feeble and languid ; respiration natural ; incontinence of urine ; no headach.

Vesicatorium nuchæ. R Calomelanus gr. ii opii grani quadrantem ft. pilula 3tiis horis sumenda. Mistura cardiaca.\*

15th. Pulse seventy ; right arm rigidly flexed.

16th. Pulse 102 ; temperature of skin, which was before below the natural standard, now normal.

18th. Pulse ninety, full and strong ; arm still flexed.

Omitr. mist. cardiaca. repetr. pil. calomelanos et opii.

21st. Discharge involuntary.

Vesicatorium nuchæ.

23rd. Mouth sore.

Omit. pilula. Infus. Arnicæ. Extract nucis vomicæ granum ter die.

A gradual amendment now began to take place, and on the 3rd of August we made the following report: he can walk about tolerably well ; the arm has quite lost its contracted and flexed condition, and has regained its natural sensibility: the sphincters have resumed their normal function ; he feels no uneasy sensation in his head. The temperature of skin is still lower than natural, and it exhibits a livid appearance. He very soon left the hospital, having improved most strikingly.

We can only speculate upon the nature of the lesion in this case. It may have been either cerebral hemorrhage, which its rapid amendment would seem to indicate, or ramolissement of the brain. In favour of this latter conjecture we had what has been regarded as the external manifestation of ramolissement of the optic thalamus, viz. permanent contraction of the upper extremity ; and may we not suppose, that there may have been an extension of disease from the inflamed eye to the brain pro-

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\* R Mit. camphoræ ℥vii. carbonatis ammoniæ ʒi. spirit etheris nitros. ʒiii.℥.

ducing ramolissement. We have often observed the dependence of disease of the eye on disease of the brain or its membranes, and the consequent futility of the exclusive application of remedies to the secondarily affected organ, whereas, when attention was directed to the organ first affected, and the remedies applied to it, their beneficial effects extended to the organ secondarily involved. We can, without much difficulty, equally suppose the extension of disease from the eye to the brain. Other circumstances connected with the case, might have given rise to ramolissement. Although we believe ramolissement of the brain to be in many cases the result of active inflammation of the organ, still we are confident that in most instances, it is either an actual mortification of the softened part, or the result of an inflammation scarcely characterized by vitality. It is not long since we saw an interesting case which strengthened us in this opinion. It was that of a young woman, who laboured under disease of the heart, consisting in contracted left auriculo ventricular opening, and who became hemiplegic before death. Examination of the body exhibited disease of the mitral valve, and consequent contraction of the opening; it also discovered to us the brain in the most complete state of anemia, with distinct softening of its structure in the lateral lobe of the side opposite to that affected with hemiplegia. The diseased mitral valve in obstructing the circulation towards the head, acted like a ligature, and produced the effect of a ligature, viz. the death of the part beyond it. The subject of our case had been largely blooded for the inflammation of the eye, and that frequently. Is it not possible that this draining the system of its blood, and therefore causing anemia of the brain, may have acted as the diseased mitral valve in the former case?

We would notice the state of the circulation in this case, indicated by a feeble languid pulse, only fifty-four in the minute. Nothing had been done in the way of medical interference before he came under our care, therefore it must have been the effects of the disease; and that such is the effect of the disease



upon the circulation, independent of treatments, multiplied observations have proved to us. This it is then which should make us cautious in measuring the extent of our depletion, and make us regulate it not only by the actual but by the prospective condition of our patient.

*Hemiplegia.*

Mary Ryan, aged 44, married, admitted into hospital March 23rd. She had always enjoyed good health till ten days since, when, without any previous illness, her husband perceived her head to fall upon her breast, her mouth drawn to one side, and a watery discharge to proceed from it and from her nose, while she seemed in a deep stertorous sleep, in which she continued for about five minutes. She was now put to bed, and after about a quarter of an hour when she attempted to get up and stand, she found that her right leg could not support her. She, in fact, lost the use of her right side, and her speech also failed her. She was bled and blistered, and in six days began to recover her speech.

Present phenomena: complete loss of motion, with diminished sensibility and temperature of the right extremities; pulse very feeble and slow; face somewhat flushed; mouth straight; tongue does not deviate from the median line; pupils somewhat contracted; memory imperfect; her articulation is distinct, but her memory does not supply her with words; sphincters act; no headach.

R Infus. Arnicae ℥vi. carbonat. ammon. ʒi. misce. Sumat ʒi. ter die. Lotio frigida fronti. Pediluvium irritans mane et vesperi. Mustard whey.

24th. Heart's action as indicated by the stethoscope, appears stronger, although the pulse is scarcely perceptible.

Mistura cardiaca.

25th. Pulse very feeble; heart's action very irregular.

Vesicatorium nuchæ et vertebris cervicalibus.

26th. Heart pulsates regularly but slowly and labouredly; pulse a degree stronger.

R Calomel gr. viii. Pul. Jacobi gr. xii. Extract nucis vomicæ gr. iij. ft. pilulæ sex, sumat unam ter die. Repet. mist. cardiaca. Pediluvium vesperi.

29th. Heart's action quite regular ; pulse sixty, feeble ; mouth affected by mercury.

Omitr. pilulæ.

April 1st. Motion of right leg much improved ; she has almost completely lost a feeling of deadness in the right side of her face, of which she before complained.

R Extract nucis vomicæ gr. iij. Opii gr. i. fuit pilulæ quatuor sumat unam ter die. Mistur. cardiaca.

She now gradually improved, came to the use of the paralysed limbs, and quite recovered her speech.

The suddenness of the seizure,\* we conceive, leaves no doubt of its not being ramolissement ; and again, the improvement in the symptoms took place in too short a time to reconcile it with this lesion. Was it a case of simple congestion ? No, for although the symptoms did improve rapidly, still the improvement was too slow and gradual to consist with congestion. We therefore conclude, that the lesion was cerebral hemorrhage.

We have again to remark on the state of the circulation peremptorily demanding the exhibition of stimulants. As soon as they served our purpose, we resorted to the use of mercury. The cases already adduced, and numberless others, which we could bring forward, have strongly impressed us with the value of mercury in affections of the cerebral system. We can by no means go along with Andral, in ascribing its good effects to its action as a purgative ; but, on the contrary, regard the actual impregnation of the system with it, as exhibited by the mouth becoming sore, to be essential to its

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\* We do not mean to say that there is not frequently as sudden a seizure in cases of ramolissement as in any other case, but we almost always have previous intimation of the disease of the cerebral organ.

efficacy. We have always found that, no matter how long a time the system required to be affected with the mercury, the symptoms never exhibited any disposition to improve, till it had become affected. In all modification of disease which we wish to remove by mercury, we do not see any effects of the medicine in the progress of its introduction into the system. It would seem as if the preoccupation of the system by the morbid influence rendered it insensible to the mercurial influence, till the latter became too powerful, and then supplanted the former. In some cases, this conflict between these two influences is very marked, and the effect of the medicine on the system, when the disease seems as it were to have relinquished its hold, is very violent. Puerperal fever and cholera, treated with mercury, have strikingly illustrated this. We are all aware of the difficulty of affecting the mouth with mercury in these cases; and in general, when such an effect has been produced, we may almost calculate upon the happy issue of the case, but always at the expense of a violent salivation. The first case (Nowlan's) exhibited to us this antagonism of influences: the pain yielded, and the tongue became clean when the gums were affected; but no sooner had the mercurial influence ceased, than the pain returned. We have observed, also, that as the mercurial influence gradually subsides, so will the pain gradually return, increasing in intensity, till, on the complete subsidence of the mercurial influence, it has attained to its original severity. If we be asked, how does mercury act in these cases, we would reply that it is by inducing either an action or condition of the body incompatible with that against which we employ it. We have found the blood to be buffed when the system is under mercurial influence.

*To be continued.*

The limits of the present Number prevents us inserting the remainder of Dr. Law's Observations, which we hold over to appear in our next.

## BIBLIOGRAPHIC NOTICES.

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*De Pulsu, Resorptione Auditu et Tactu.*  
*Annotationes Anatomicæ et Physiologicæ.* Auctore HEN-  
RICO ERNESTO WEBER. Lipsiæ, 1834.

ANALYSIS AND OBSERVATIONS BY DR. GRAVES, ON THE SENSE OF TOUCH.

WEBER's experiments on the sense of touch are extremely interesting and original; some of them have been already published in English periodicals, but in so imperfect a manner as to furnish a very inaccurate and incomplete view of their results.

If we touch the skin with the points of a compass one inch asunder, while the person so touched shuts his eyes, he at once perceives his skin to be touched in two places. By continually diminishing the distance between the two points, we finally arrive at a degree of approximation where the person feels his skin to be touched by but one body; he describes this body, however, as being a little longer in one direction than another, and it appears that this longer diameter corresponds with the line of junction between the two points of the compass. When these points are brought still nearer together, this inequality in the diameters is no longer felt, and the person has a defined perception of being touched by but one body. Now Weber has determined, by experiment, that the different portions of the surface of the body vary considerably in accuracy of touch, *as measured by the distance at which the points of the compass can be still distinguished from each other*; for it is evident that parts endowed with great power of touch, will continue to give notice of two points, at a distance from each other, so small, that when examined at the same distance by less sensible portions of the skin, these two points excite but one sensation, and are by the touch erroneously judged to be but one. Thus the tips of the fingers and the point of the tongue were found to possess the most accurate sense of touch, for when the points were distant but half a Parisian line from each other,



(counting from the inner surface of each point,) the feeling of two distinct points existed, and when they were within two-fifths of a line, although the person seemed to feel but one body, he nevertheless felt it to be longer in one direction than in another. The dorsum of the tongue was remarkably less sensible, for if the points placed in a line parallel to the median were less distant than three lines from each other, they were not felt to be distinct. *Few persons who have not tried similar experiments will be prepared to credit the announcement of the immense difference which exists between the tactile accuracy of different portions of the skin ;* on this subject the observations of Weber are quite novel, and open a new field for inquiry, not only to the physiologist, but to the practical physician and surgeon ; for it is obvious that injuries or remedies applied to the skin must act with very different degrees of energy on parts so widely different in tactile sensibility from each other. I have repeated many of Weber's experiments, and confirmed his results ; a little practice is necessary in order to accustom ourselves to judge concerning the sensations compared, as the points of the compass approach each other, and come within the *limits of confusion*, (a term I have adopted to express the distance at which they produce the feeling of but one body, longer, however, in one direction than another,) the sensation imparted is most curious ; a few instances will suffice to prove the extent of the scale through which this *limit of confusion* ranges, when the points are placed *on the same horizontal line*.

	Line.
Tip of the tongue, ... ..	1
Margin of tongue, one inch from its tip, ... ..	2
Skin on the zygomatic bone, ... ..	6
Forehead, ... ..	6
Hairy scalp, ... ..	8
Middle of Back, ... ..	12
Near the upper border of the scapula, ... ..	18
———— inferior angle of the scapula, ... ..	24
On the loins, ... ..	12
Side of abdomen, ... ..	12
Anterior surface of arm, ... ..	10
Posterior, do. ... ..	14
Tips of the fingers, ... ..	1
———— toes, ... ..	3

The above results were obtained in examining the skin of others. The following, which Weber has arranged in the ascending scale as to the measurements of the *limit of confusion*, was taken from experiments on himself. He entitles it "Ta-

bula graduum subtilitatis tactus in potissimis corporis mei partibus, quos per minimam distantiam crurum circini corpori impositorum, qua perpendicularis et horizontalis crurum situs, et intervallum interpositum sentiri poterat, metitus sum."

The *limit of confusion* in the following table, is therefore *the distance at which* the points of the compass could not only be perceived to be distinct from each other, but their direction, whether horizontal or perpendicular, could be judged of:—

	Lines.				
Tip of the tongue	...	...	...	...	$\frac{1}{2}$
Inner surface of the finger tips,	...	...	...	...	1
Red part of lips,	...	...	...	...	2
Inner surface of second phalanx of fingers,	...	...	...	...	2
Outer of third phalanx of ditto,	...	...	...	...	3
Top of nose	...	...	...	...	3
Inner side of extremities of metacarpal bones	...	...	...	...	3
Dorsum of the tongue one inch from its point,	...	...	...	...	4
The portion of the lips which is not red,	...	...	...	...	4
Edge of the tongue one inch from its point,	...	...	...	...	4
Metacarpal bone of thumb,	...	..	...	...	4
Apex hallucis,	...	...	...	...	5
Skin covering buccinator,	...	...	...	...	5
Dorsum of second phalanx of fingers,	...	...	...	...	5
Palm of the hand,	...	...	...	...	5
Surface of eyelid,	...	...	...	...	5
Centre of hard palate,	...	..	...	...	6
Anterior surface of zygomatic process,	...	...	...	...	7
Dorsum of the first phalanx of fingers,	..	...	...	...	7
Outside of extremities of metacarpal bones,	...	...	...	...	8
Mucous membrane of lips close to the gum,	..	...	...	...	9
Posterior surface of zygomatic process,	...	...	...	...	10
Lower part of forehead,	...	...	...	...	10
Back part of the heel,	..	...	...	...	10
Occipital skin, lower part,	...	...	...	...	12
Back of hand,	...	...	...	...	14
Neck, beneath lower jaw,	...	...	...	...	15
Vertex of the scalp,	...	...	...	...	15
Patella,	...	...	...	...	16
Skin on the sacrum,	...	...	...	...	18
Acromion,	..	...	...	...	18
Glutæus,	...	...	...	...	18
Superior and posterior surface of forearm,	...	...	...	...	18
Leg near the knee and near the foot,	...	...	...	...	18
Dorsum of foot near toes,	...	..	...	...	18
Sternum,	...	...	...	...	20
Dorsal spine over five superior vertebræ,	...	...	...	...	24
Cervical spine near occiput,	...	...	...	...	24
Lumbar spine,	...	...	..	...	24
Centre of cervical spine,	..	..	...	...	30

	Lines.
Centre of dorsal spine, .. .. .	30
Middle of the arm where it measures most in circumference, .. .. .	30
Do. of thigh, .. .. .	30

This enumeration of relative distances, allowance being made for all probable inaccuracies in the experimental estimate of these distances, affords ample matter for reflection, and furnishes abundant proofs, if any were wanting, of the wisest adaptation of parts to the functions they are called on to discharge. Here is no unnecessary expenditure of tactile acumen, but a most rigid economy of the sense of touch, which is nowhere spread over surfaces indiscriminately, and without reference to their other physical qualifications. *This great difference was never before suspected to exist*; it was indeed known that the tops of the fingers, the tip of the tongue, and some other parts, enjoy the sense of touch in a preeminent degree, and are capable of judging much more delicately, concerning what they are placed in contact with, than other portions of the body. This was attributed partly to habit, partly to their shape, and many laid great stress on the facility with which these extremely moveable parts could be adapted and applied to bodies undergoing examination. Now, for the first time, has it been proved by Weber, that quite independently of all these extraneous circumstances, the skin itself varies in the intensity of its tactile power; and that this arises not from the mere varying thickness of the epidermis, and general delicacy of conformation in the cutaneous tissue, but from an original difference in its organization. All these facts tend strongly to overturn the common hypothesis, that the sense of touch is diffused throughout the whole texture of the skin, and render it much more probable that it is performed only by certain small organs, extremely minute, and in size comparable to points, but differing much in their mode of distribution, being very crowded together and numerous in some parts of the skin, while in others they are more sparingly present, and are, as it were, thinly scattered. On this supposition alone can we account for the immense differences in tactile discernment, which the different portions of the skin exhibit. The researches of Breschet, to which the attention of the English public was first drawn, by an able analysis by my friend Dr. Costello, published in the Dublin Medical Journal for September 1835, these researches have rendered it certain, that the sense of touch is performed by a less simple apparatus than was generally imagined. M. Breschet considers that the nerve parts with its neurilema at the derma, as the optic nerve does in entering the sclerotic, and that the projecting papillæ take a new envelope from the outer surface of

the derma ; that the mere nervous pulp does not, of itself, constitute the sense of touch, but that, as in the sense of hearing or of sight, there is an apparatus, all the parts of which must be in unison to be perfect. If any one of the five constituent parts be wanting, touch cannot be exercised, and the derma, neurilemma, and proper epidermic membrane are to the papilla, what the complicated apparatus of sight and hearing are to the optic and acoustic nerves. The analogy goes farther, for the optic and acoustic nerves, on entering the structure of the eye and ear, undergo the same change as the tactile nerve entering the derma, with this difference, that the two former remain in their cavities, where light can penetrate to the one and sound to the other, but the nerve of touch must advance, as it were, to meet impressions.

The following very curious phenomenon is recorded by Weber : “ If the points of a compass, distant from each other one or two lines, applied to the cheek, just before the ear, be then moved successively to several parts of the cheek, we shall find, on approaching the angle of the mouth, that the points will appear to recede from each other ; this is produced by the great difference of tactile power in these parts. It is a general law, that the more sensitive portions of the skin regard any two points as further asunder from each other, than equidistant points appear to be to a less sensitive portion. The same experiment may be tried by holding together the extremities of the fore finger and thumb, and then passing the tips of both in a line from the ear to either the upper or the under lip ; as they approach the latter, they will feel to the cheek as if they were becoming more and more distant from each other.”

Another fact was observed by Weber, “ If the legs of the compass be applied to two contiguous surfaces, enjoying the functions of voluntary motion, they will appear to be much more distant from each other, than when they are applied to one of these surfaces separately. Thus, if the points are distant half a line, they are not perceived to be distinct when applied to one lip, but when one point is applied to the under lip, and another to the upper, they are at once felt to be two.”

Another very remarkable conclusion announced by Weber deserves consideration : “ Apply the legs of a compass to two portions of the skin, differing from each other remarkably, either in structure, in function, or in the use habitually made of them, and the legs will appear to be more clearly and distinctly felt, than when they are applied to one and the same surface, even though it be the more sensitive of the two ; thus the legs when in contact, one with the inner surface, and the other with the red outer surface of the lips, appeared much



more distant from each other than when they were in contact with the red surface only, which has much greater tactile powers than the inner surface. The same observation applies equally to other neighbouring surfaces, differing much from each other in tactile power, viz. the margin and the dorsum of the tongue, the volar and the dorsal surfaces of the finger-points, &c."

One result of Weber's experiments is of great importance in a physiological point of view: "The tactile powers of any part of the skin are not, as is generally imagined, directly proportioned to its sensibility; thus the mammæ are easily tickled, and capable, when irritated, of producing great pain; in these respects they exceed any portion of the trunk, and yet the skin of or around the nipples is but very indifferently endowed with the faculty of touch, properly so called. Indeed the same remark applies to the arm pits, the flanks, the soles of the feet, &c. and all ticklish parts of the skin in general, as they are possessed of a comparatively slight power of discriminating objects from each other by means of the touch. Who was ever made to laugh by tickling the points of his fingers? and yet they are possessed of a tactile accuracy far exceeding that of any other portion of the skin!"

This is a very curious subject of inquiry, and one not yet investigated. The reason of the matter is sufficiently obvious; for parts endowed with the greatest tactile acumen, are necessarily much exposed, being so placed as to be brought with the greatest facility into contact with external bodies; consequently, if so disagreeable a sensation as that arising from tickling were easily induced by this contact, those parts would be almost useless as organs of touch. The experiments of Weber, considered with reference to the researches made by Breschet on the structural anatomy of the skin, render it extremely probable that the sense of touch, properly so called, resides in a peculiarly constructed apparatus, supplied with certain ramifications of the cutaneous nerves, while the function of sensation, comprising the power of perceiving painful or pleasing impressions, is much more generally diffused, and is the result of a much simpler organization. In fact, although the internal, mucous, fibrous, and serous surfaces, and the parenchyma of the different organs, are all capable of becoming acutely painful, particularly when inflamed, yet it is very doubtful whether the sense of touch, properly so called, is ever exercised by those parts. No foreign substance is ever distinctly felt by the touch in the stomach and bowels; a sensation, painful or pleasing, is indeed excited by some matters immediately after they are swallowed, but all consciousness of their presence, by means of the sense o

touch, soon ceases, and it cannot be again recalled by the utmost exertion of the will. A foreign substance lodged in the alimentary canal, or in the trachea, may give rise to the greatest possible degree of irritation ; but though it thus acts upon the nerves of the parts immediately in contact with it, these nerves convey no idea to the sufferer of the shape or size of the body, or of any of its other physical qualities, concerning which we receive information through the medium of the sense of touch.

*Weber's* observations (pp. 67, 77,) on the comparative tactile energy of the different portions of the trunk of the body, are extremely curious, and have disclosed a very remarkable difference between the sense of touch in the trunk and in the extremities. In the latter, where the points of the compass are placed across the axis of the limb, (horizontally,) they are much more accurately distinguished than when they are placed in the longitudinal direction, or parallel to the axis of the limb (vertical ;) in other words, the *limit of confusion* is much sooner attained in the vertical than in the horizontal position of the points. Now in many parts of the trunk, the contrary obtains, and the vertical position is more accurate than the horizontal ; this singular difference *Weber* explains by the different manners in which the nerves supplying the extremities and the trunk are distributed. The branches of the former generally run nearly parallel to the axis, while those of the latter pursue in most cases a transverse course ; all parts of the trunk do not exhibit this difference. Whether this explanation is or is not admitted, the fact is undoubted. Our author next proceeds to shew that motion, whether it be of the touching organ, or of the body to be touched, greatly augments the clearness and accuracy of the perception, a fact too familiar to require any elaborate illustration. As to the *idea of direction*, which we derive from the sensation imparted to the skin by any minute substance, he justly observes, that it is always judged to be perpendicular to the surface of the skin at the point of contact. Of this there can be no doubt, and here we have a very striking analogy between the sense of vision and of touch, for it is a primary law, that rays of light impingent on the retina, always produce a sensation, i. e. are seen in a direction perpendicular to that point ; it would be well worth while examining, whether the same law of perpendicularity is extended also to the ear. In the case of the eye this law is strikingly useful, as it enables many rays originally diverging from the same luminous point, all to create a sensation in the same direction, although in converging they strike the retina from very different directions ; in the eye all these perpendicular lines intersect at a common point, thence called the centre of visible direction, and this re-

sult derived from the spherical shape of the retina, is attended with the most important consequences. No one has as yet attempted to investigate the question, whether any similar provision or contrivance exists with regard to the lines of direction, to which each part of the auditory nerve receiving vibrations, refers sound; any given point of the hearing surface of the acoustic nerve receives impulses from the vibrations essential to this sense, conveyed either through the fluid of the vestibule and semicircular canals, or through the solid bone surrounding the cochlea; the question arises whether vibrations excited originally by the sounding body, arrive by different routes simultaneously at the same point of nerve, so as mutually to reinforce and strengthen each other. Is there in this case any provision made to prevent vibrations which arrive in different directions from interfering with each other, with reference to the sensation they produce? Or are both, as impinging on a common point, referred to one common direction? If this were the case, the analogy between the perceptive properties of the retina and auditory nerve would be perfect, and nothing would remain to the philosophical examiner of the mechanism of the sense of hearing, but to discover what relation these lines of common direction bear to the surface of the auditory nerve, and to each other; are they, as in the case of the retina perpendicular to the nervous surface, and in what manner are they so arranged, that in consequence of the shape of that surface in the convolutions of the internal ear, each line of direction resulting from the vibrations communicated to any point, may be parallel to the various other lines of direction which result from vibrations, simultaneously communicated to all other points of the nervous surface?

These are extremely difficult questions, but it is by no means improbable, that they may be hereafter satisfactorily resolved. But to return to the sense of touch, in some parts of the surface, an exception seems to occur to the general rule of perpendicularity; thus, when a hair of the head is pulled, we can judge perfectly well of the direction in which it is pulled. The most obvious explanation of this fact, which refers to the discrimination of the line of traction to the bulb of the hair, Weber proves to be erroneous, and he shews that we judge of the direction in which the hair is pulled, by means of the muscles called into exertion to counteract the pull, and keep the head steady during its continuance. If these muscles be not called into play, which is the case when the head is held steadily by the hands of one person, while another by surrounding the point in which the hair is pulled, with a firm pressure made by the fingers, thus prevents the least motion in the inclosed portion



of skin, then no matter in what direction the hair is pulled, the person cannot judge of it.

Weber's experiments on the faculty the skin possesses of estimating and comparing different pressures made on its surface, ought not to be altogether passed by in this report. One chapter he entitles "*De Subtilitate Tactus in Cognoscendo Corporum Pondere.*" If both the right and the left hand of the same individual are supported on cushions, and that he keeps his eyes shut, while unequal weights are placed one on each hand, he will, if the difference between the weights is considerable, be able to tell on which hand the heavier lies; slight differences of weight cannot be thus estimated, but they at once become perceptible if the hands be raised from the cushions; the muscles that now support the weight give great assistance in estimating its force. Thus we judge of the weight of any heavy body, partly by the pressure it produces against our surface, but chiefly by the quantity of muscular force it requires us to use in lifting or sustaining it. Weber has ascertained that in most men the left side of the body and the left extremities enjoy a more accurate perception of weight than the right, so far as weight is estimated by pressure; of fourteen different persons experimented on, the left side of the body and the left extremities were found to be more sensible of weight, measured by pressure, than the right in eleven; in two the contrary was observed, and in one only no difference between the sides could be detected. He offers no satisfactory explanation of this very remarkable and hitherto unobserved phenomenon, which is obviously of some value as making an original difference between the nervous power of the right extremities and right side of the trunk as compared with the left, a difference which favours the idea, now indeed generally admitted, that we cannot explain the circumstance of man being right-handed and right-footed, except on the hypothesis of an original difference in the vital powers of the right and left halves of the body.

Weber next proceeds to make some observations, *De Subtilitate Tactus in Sentiendo Calore.*

I long ago maintained the opinion that the perception of heat and cold is not a mere modification of the sense of touch. I am glad to find this view of the subject advocated by so high an authority as Lord Brougham, who, in his Discourse on Natural Theology, p. 111, note, remarks that "there seems as little reason for arranging the sense of heat and cold under touch, as for arranging sight, smell, hearing, and taste under the same head." Experiments made for the purpose of comparing the energy of this sense in different parts of the body,



are attended with obvious difficulties : thus if the surface of the substance applied to the body be not exactly of the same extent in two cases, the result is not to be relied on, for *ceteris paribus* a larger body will feel hotter or colder than a smaller, and that in a very remarkable degree. Thus, let one vessel contain water heated to  $98^{\circ}$ , and another water at  $104^{\circ}$ ; now if the finger be placed in the latter, and the whole of the other hand be immersed in the cooler, we shall be led to form a wrong judgment, and will pronounce the water at  $98^{\circ}$  to be hotter than that at  $104^{\circ}$ ! In some cases the same error was made when the difference of temperature amounted to eight degrees, the hotter being at  $106^{\circ}$ . If the parts were kept a good while immersed, the person sometimes becomes sensible of his error, and judges rightly.

Weber has discovered the very remarkable fact, that *the left hand is more sensible of heat or cold than the right, in most persons*. Thus, when the hands of a person lying in bed, and of exactly the same temperature, were plunged each in a separate vessel of hot water, the left hand was believed by the person to be in the hotter medium, even though the water it was in was really one or two degrees cooler than the other. Weber has rendered it highly probable that the greater sensibility which the left hand undoubtedly possesses in perceiving changes of temperature, is owing to the circumstance of its being covered, particularly on its palm, by a thinner epidermis, in consequence of being less used. Nothing is more striking than the accuracy of the skin in giving notice of changes of temperature; for a difference of one-third of a degree is detected clearly when the hand is immersed repeatedly and successively in two vessels of water, differing only so much in temperature. The skin detects best very minute changes of temperature when the medium examined does not fall short of, or exceed very considerably, the usual temperature of the body. Water at  $98^{\circ}$  can be much more certainly distinguished by the hand from water at  $100^{\circ}$ , than can water at  $120^{\circ}$  from water at  $118^{\circ}$ . As the ears perceive best a difference of tone in sounds, neither too acute or too bass, or immoderately loud, so the skin judges with most accuracy of medium temperatures, which produce no very violent or painful effect on its nerves. Weber is of opinion that the perception of temperature imparted to each nervous extremity in the skin, goes to unite itself to, and strengthen, simultaneous impressions in the other ramifications of the same nerve, thus producing, by the conflux of a great number of impressions, a much stronger result and effect. This, at least, is certain, that a large conveys much stronger impressions than a small surface, and estimates changes of temperature with greater

delicacy. Thus, if we place the fore-finger of one hand in water at  $104^{\circ}$ , and plunge the whole of the other hand into water at  $102^{\circ}$ , the latter will appear to us to be the warmer. If we plunge the finger successively into vessels containing hot water, we are unable to perceive very minute differences of temperature, which at once become perceptible when we use the whole hand. Nay, water, which can easily be borne by a single finger, will appear intolerably scalding to the whole hand! With regard to the power the skin possesses (by means of touch and its modifications) of comparing together two different temperatures or weights, various and multiplied experiments prove that this power is exercised with the greatest success when the perceptions compared are not simultaneous but successive. It is the same with the smell, taste, and hearing; apply to the tongue by means of camel's hair pencils, small portions of an acid and of a sweet substance; if the application of both be in quick succession, their taste is accurately distinguished and appreciated; but if they be applied simultaneously, the result is a less vivid perception of either, and a blending as it were together of the acid and the sweet; a similar result is obtained by applying the mouths of phials containing two different but strongly odoriferous substances, to the nostrils; and musicians have long ago remarked, that when we wish to compare together two notes, it is done with much more accuracy by striking them in quick succession, than by striking them simultaneously. Vision appears to present an exception to the law which governs the other senses; for if we want to compare the lengths or the colours of any two lines, we place them close together, and look at them at the same moment. As Weber well remarks, however, the exception is here only apparent; for the truth is, *that we see nothing with perfect accuracy except its image falls on the retina at the extremity of the optic axis*; consequently, in examining two lines close beside each other, although we think we examine them simultaneously, yet we do not do so; our examination and comparison is made by causing the image of each to occupy the extremity of the optic axis several times in very rapid succession. The change in the position of the eye is here so slight, and is performed with such ease, that we are unconscious of it.

Weber made many experiments on the accuracy of the sense of weight: of course this sense is more developed in some individuals than in others, and is capable of being rendered more exact by practice. Men accustomed to estimate weights by poising them in their hands, will distinguish perfectly between two only differing by a thirtieth part. In comparing two weights, one is poised, and then instantly the other *in the*

*same hand.* The intervention of a few seconds between the poising of the first and of the second, does not prevent their accurate comparison. The interval may amount to twenty seconds, and yet a just estimate will still be made; but when it amounts to forty seconds, all accuracy is lost. The sight enjoys a still more accurate power of discrimination than the sense of weight, for a well practised eye will distinguish between two lines, one hundred and one hundred and one *lines* long respectively; in other words, will discover a difference amounting to one-hundreth part of the whole. According to the experiments of Delezenne, quoted by Weber, the sense of hearing is still more accurate, for a well practised musical ear will distinguish between two sounds differing from each other only  $\frac{1}{320}$ , calculating the number of vibrations the sounding bodies make in a given time.

A line can be perceived to be longer than another, even when an interval of fifty or sixty seconds elapses between looking at the first and at the second, provided that the lines differ  $\frac{1}{11}$ th in length. If they differ only  $\frac{1}{21}$ , then an interval of thirty-five seconds may elapse without destroying our judgment, but if it be longer, our judgment becomes incorrect. When the difference between the lines amounts only to  $\frac{1}{50}$ , an interval of three seconds between the examination of each, is the longest that can be allowed without interfering with the correctness of the comparison. Having followed Weber with some accuracy through the body of his valuable Treatise on the Touch, it may be worth while to dwell again for a moment on some of the chief conclusions he arrives at. We have a well established and definite idea of the distance of some parts of our bodies from others. Thus we feel the distance of the finger points from the wrist, and we remember that distance. It is the same with the arm as far as the elbow, and with the foot. These are all lengths which are firmly imprinted on the mind, and consequently there is a physiological reason for using them, as mankind have always done, as standards of measurement. When any two points on the surface of these parts are touched at the same time, we can with our eyes shut, and by means of the sense of touch alone, guess with great accuracy the distance the touched points are from each other, provided the points are situated somewhere near the sides or extremities of these parts, as at the tips or on the sides of the fingers. Here two points will be perceived to be distinct at distances much less than half an inch; but if the points be situated elsewhere, as on the back of the hand, then, although they be distant from each other half an inch, they will scarcely be felt as distinct, provided the line joining them is parallel to the long axis of the part: when it



it is transverse, the perception is much clearer, and continues at much smaller distances.

The discovery, that two equi-distant points of contact on the same surface excite very different ideas of the distance between them, according as the space lies lengthways on or across the limb, is one of the most striking and important which Weber has made, and can be most readily verified by experiment.

Nor am I aware that modern physiologists have obtained any results more curious than those relating to the different tactile acuteness enjoyed by different parts of the skin; a difference so great, that the points of a compass applied to the tip of the tongue can be felt to be distinct when only distant half a line from each other; whereas, to use Weber's own words, "In medio brachio, in medio femore, in dorso scapulæ, aliisque in locis sensus ille naturâ tam parum acutus est, ut apices circini  $1\frac{1}{2}$  pollicibus Paris. a se invicem distantes, unam impressionem proferant, si nimirum ita ad has partes admoventur, ut linea utrumque apicem inter se conjungens secundum longitudinem brachii vel femoris posita sit."

*Rudiments of Physiology, in three Parts. Part I. on Organization. Part II. on Life, as manifested in Irritation. Part III. on Life, as manifested in Sensation and in Thought.* By JOHN FLETCHER, M. D. F. R. C. S. E., Lecturer on Physiology, and on Medical Jurisprudence. Part I.

*Supplement to Outlines of Physiology.* By WILLIAM PULTNEY ALISON, M. D. F. R. S. E., Fellow of the Royal College of Physicians, and Professor of the Institutes of Medicine in the University of Edinburgh.

SINCE the commencement of the Dublin Medical Journal, its Editors have been anxious to present their readers with reviews of the best and latest publications. This object has not, however, been completely accomplished, as may be proved by a retrospective view of eight volumes already printed; for though containing notices and analyses of numerous and important works, they nevertheless omit all mention of others scarcely less novel or valuable. It is our intention to supply, as far as possible, this deficiency in the future numbers of this Journal, by devoting a separate section to the examination of all medical publications of importance, and by giving a brief outline of their subject-matter, and an opinion as to their value. This plan will prove, it is hoped, eminently serviceable in enabling our readers to select for purchase whatever is best suited to their studies, and will prevent our incurring



censure for omissions, unavoidable as long as all our notices of new books were lengthened and detailed. Hitherto the Editors have not deemed it judicious to review works which previously had been fully analyzed in one or several of numerous cotemporaries. This plan of proceeding, whether judicious or the contrary, may explain why no notices appeared in this Journal of the works of Carswell, Hecker, Andral, (translated by Dr. Spillan,) Prichard, Clarke, Mac-Robin, Lombard, Hali-day, and other authors of equally established reputation. The truth is, having been so fully analyzed by other journalists, before our turn for publication had arrived, we deemed it unnecessary and superfluous to devote any space to their consideration. Thus, in the case of Dr. Prichard's justly celebrated work on insanity, we thought any review unnecessary, so ably had it been analyzed in the *Medico-Chirurgical Review*, edited by Dr. Johnson. These observations apply likewise to Dr. Clarke's work on consumption, and to the remarkable histories of the epidemics of the middle ages, translated from the German of Hecker. On the other hand, as our numbers appear every second month, we often enjoy an advantage over our quarterly fellow-labourers, and consequently are enabled in many instances to anticipate them in our notices of important publications.

The works prefixed to this article are of the greatest value, and ought to be attentively perused by every student. Dr. Fletcher's *Rudiments of Physiology* far exceeds, in comprehensiveness of design and accuracy of details, the limits usually associated with so unpretending a title. We have long felt the want of such a work in English, and have long regretted that no competent person had applied himself to the laborious but useful task of condensing and arranging the physiological discoveries made of late years in France and Germany. This task Dr. Fletcher has ably performed, and his work is consequently of the greatest value. Our commendation would be most injudicious, if it conveyed the impression that we look upon Dr. Fletcher as a mere compiler: far from it; every page of his book exhibits proofs of originality, and every chapter contains views remarkable for their novelty and importance. Dr. Fletcher's *Rudiments of Physiology*, and Professor Grant's *Lectures on Comparative Anatomy*, should be in the hands of all, anxious to become acquainted with the comprehensive and enlightened views revealed by modern discoveries, and therefore most heartily do we commend them to the notice of our readers.

Dr. Fletcher divides his first part, consisting of 155 closely printed pages, into three chapters. In the first he treats of the form and classification of organized beings; in the second, of

their aggregation ; in the third, of their substance ; and in the fourth, of their composition. In the first chapter Dr. Fletcher makes some very apposite remarks on the question, whether the various tribes respectively of plants and animals be fundamentally different from each other, and arrives at the conclusion that they are. We have long advocated this opinion, and in our lectures upon the developement of the human fetus, we have used the very same reasoning brought forward by our author, to prove that the fetus does not belong in turn to each inferior tribe of animals before it arrives at its own. "The human fetus never belongs to any tribe but man. Its several organs may, in their different phases, be formed in succession upon the model of those of many inferior tribes, but the fetus collectively is never formed upon any model but its own."

The true mode of considering this subject is clearly put by Dr. Fletcher in the following passage, and we beg, therefore, to direct the particular attention of our readers to it, for it will enable them to avoid a very common and a very important error.

"That the corresponding *organs* of the different tribes of animals are fundamentally the same, and that the organs of the human fetus represent in turn many of the lower animals, is a truth which will in future fall to be particularly insisted on ; but the fundamental identity of such organs by no means implies an actual identity, either of the different *tribes* of animals which consist of an assemblage of these organs, or of the human fetus at any period with any one of the inferior tribes. In order that this should be the case with respect to the different tribes, as compared with each other, it would be necessary, as just observed, that the form and mutual relations of the several organs should be at every step in the ascending scale maintained ; whereas it is sufficiently well known, not only that any developement may be, with respect to the elements of each organ, quite irregular, so that its general aspect may become entirely changed, but also that some organs do not at any given step advance at all, perhaps even recede, while the rest undergo, some a slight, and others a vast degree of developement. And the same want of correspondence takes place in the progressive advancement of the organs of the human fetus, as compared with any one of those of the inferior tribes. Its individual organs may represent, at different periods of their elaboration, those of an avertebrated animal, of a fish, a reptile, a bird, a quadruped ; but if, while the respiratory organs are like those of one tribe, the circulating organs represent those of another, and the assimilating organs, the genital organs, and those of sensation, thought and voluntary motion, those of numerous others, it is impossible that, akin as it may be in its several parts to many, it should be collectively akin to, and still less identical with any one.\*

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\* "The system, then, which would establish it that 'men and toads' differ only in their greater or less developement, is not tenable ; for, admitting that during

"It is not then on one common nucleus, but on several, that the various tribes of animals and plants appear to have been constructed; and the different character and mutual relations of these nuclei in the various tribes seem to be quite sufficient to justify us in regarding them as decidedly different from each other."—p. 15.

In the second chapter Dr. Fletcher observes :

"That the great diffusion of the several organs is a chief characteristic of the lowest forms of organized beings; and that the tendency to concentration or centralization in this respect is in general in the direct ratio, in each, of the advancement of its organism, or its rank in the scale of organized beings, to be determined, as already stated, by the number and extent of its relations with the external world."—p. 19.

This is most important. Formerly every thing was believed to radiate from the centre to the circumference, and the smaller extreme parts of each system were thought to be mere prolongations or ramifications derived from more central and larger masses of the same tissue. Thus the small nerves were supposed to be derived from the spinal marrow, and the latter from the brain; while the small veins and arteries were considered as prolongations of the larger. This mistaken physiological opinion was the cause of many important errors in pathology. Thus the vessels which appear in coagulable lymph, or in the soft callus formed as the first step in the reparation of fracture, were believed to have shot out from the neighbouring parts; whereas we now know that the extreme vessels are in every case formed before the more central, the branch before the trunk. It is this principle which governs the order of en-

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the developement of the human fetus, it rests at each step of its progress upon a basis inferior to that to which it is about to be raised, it is not true that this inferior basis is identical with any other established form of organized existence: and still more certainly do the various tribes of mature animals essentially differ from each other. For the phrase, then, '*Les Animaux sont tous créés sur le même plan*,' we should read rather '*Les Organes des Animaux*,' since, in the different associations constituting the various species of animals, the plan is decidedly different. The established distinctions, therefore, between beasts and birds, and creeping things and fishes, may be allowed still to remain; and it may be conceded to Weber, that, however similar certain animals may be to one another in some respects, they are still more dissimilar in others, (*Hildebrandt's Anatomy*, I. 125); and to Rudolphi, that the human embryo is still a human embryo, distinct from all other animals and animal embryos, and that it never was a worm. (*Grund. der Physiol.* 1821, § 129.) All the races of animated beings may be, as Doctor Roget remarks, 'members of one family,' but no one of these members has ever been identical with any other; and 'whatever may be the apparent similarity between one animal and another during different periods of their respective developements, there still exist specific differences, establishing between them an impassable barrier of separation.' (*An. and Veg. Physiol.* 1834.)"



largement observed in the formation of a collateral circulation, in cases where the circulation in the main trunk is impeded or destroyed. Here the small arteries become enlarged first, and after them the large begin to dilate, the initiative being probably owing to the capillaries. Dr. Fletcher brings forward many proofs of the truth of the general proposition above referred to, and concludes by the following instructive remarks:

"But it is in tracing the progressive developement of the human embryo, as that destined to undergo the most remarkable, and the longest series of transformations, that we are most struck with these gradual changes from diffusion to centralization, as its organism verges towards maturity. In all probability the minute germ of the human being, or primary germinal membrane, is in structure strictly analogous to the simplest zoophyte, containing, not any where the rudiments of any organ as it is in future to appear, but in every point rude structures performing the offices of these organs, while each distinct organ is subsequently formed by the concentration, as it were, of these structures in certain parts, in proportion to the advancement of its organism. It would hence follow that, in the systems which are to be afterwards universally diffused, as the vascular and the nervous, every point of their area would co-exist from the first; and it has accordingly been pretty well established that it is not, as was for a long time supposed, by the shooting forth of any pre-existing central organs that the extreme parts are constituted, but by the coalition of these central organs, when formed, with the primordial extreme parts, that each system is at length perfected. Thus it is not from the heart and brain that the large vessels and nerves, and from these again that the smaller grow, but each minute vessel and nerve has from the first a kind of independent existence, and is developed *per se*;\* and it is at least as much from these extreme parts towards the common centres, as in the opposite direction, that the junction of the two proceeds. It seems that the primary germinal membrane, at first an apparently uniform mass, soon undergoes the first step to concentration, or splits into certain distinct portions, which have been called respectively its mucous, its vascular and its serous layers; and that of the first of these (the process of concentration still going on) are subsequently formed the stomach and intestines, and other organs consisting essentially of mucous tissue, of the second the heart and large vessels, and of the last the spinal cord

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\* "Harvey, Wolff, and Pander, are among those who have most successfully established this fact, with respect to the origin of the blood-vessels in the vascular area of the yolk of the incubated egg; and Doëllinger, (*Journ. de Prog.* 1823.) Kaltenbrunner (*Ibid.*), and Baumgartner (*Isis* 1830), with respect to that of new blood-vessels in general. Dr. Allen Thomson's Inaugural Essay (*On the Formation of New Blood-vessels*, 1832) is an extremely valuable summary of the observations and opinions of these and other physiologists on this subject."



and brain, the bones and muscles, and the common integuments, till at length the union of the centre with the extreme parts of each general system being effected, the proper instrument of each function becomes entirely isolated. This degree of perfection, however, is only very gradually attained; and one point it is of great interest to be acquainted with, particularly as bearing on the subject now under consideration, that each of those organs which are afterwards to be single, (the stomach and intestines, the heart, the brain, and the bones and other parts in the mesial line,) is said to be at first double, as formed in two halves on the opposite sides of the body, and that it is only after some time that these unite into one,\* so that one grand step in concentration is certainly an attendant on the progress of organization. But this is not all; for the proper instrument of each function has in the early human embryo very much of the diffuse character which it presents in the lower animals. Thus there was a time, during its progress to maturity, when the human embryo had a kind of gills as well as lungs, to say nothing of the employment at once of a yolk-bag, an allantois, and a placenta, in the capacity of a respiratory organ; when all the large blood-vessels, which are afterwards to become single, were double; when the intestinal canal was enormously long and sinuated, the liver double, with each portion deeply indented, and the kidneys long and lobulated; when the ovaries of the female were likewise lobulated, while in the male the epididymis and body of the testicle were quite distinct from each other; and when the uterus of the female was at first distinctly double, and afterwards bifid. All the conglomerate glands, moreover, were at one time merely distinct mucous tubes, shooting into gelatinous masses, by which at length they became concentrated. How diffuse also was at first the spinal cord (which, originally a double thread, extends at the third month as low as the coccyx, whence it gradually creeps upwards, till at the seventh it terminates about the fifth, and at the ninth about the second lumbar vertebra) it is superfluous to say; and how innumerable were at first the bones, is equally well known.

"Every view of the matter, then, seems to furnish evidence that the tendency to concentration or centralization of its several organs is in general in the direct ratio of the rank of an organized being; but, in whatever state they may exist, the parts in question are not less decidedly organs, nor less certainly essential, collectively taken, to the well-being both of each other and of the indi-

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\* "The law by which the two halves of the body are separately developed, is called by Serres, one of the most active prosecutors of these speculations, '*la loi de symétrie*,' and that by which they at length coalesce in the mesial line, '*la loi de conjugaison*.'" (*Anat. Comp. du Cerveau*. 1824.) It is denied, however, by Mayo, (*Outlines of Physiology*, 1833, p. 385,) that these laws are so constant as they have been represented, the spinal cord and brain, for example, being, according to him, from the first single, and only appearing double from becoming opaque first at the sides."

vidual to which they belong, when most diffuse and ambiguous, than when most concentrated and unequivocal. Nor must we quit this subject without remarking, that a knowledge of the chief laws which regulate the developement of the embryo, in as far at least as regards the junction of the extreme and central parts of the general systems on the one hand, and the primary separation and subsequent union of the single organs on the other, is often available in explaining certain kinds of monstrosity. It is to the defective operation of the former of these laws that we must refer a normal extreme with an anormal central organ, or the reverse, as a retina without an optic nerve, or *vice versa*; and to that of the latter that we must ascribe the hare-lip, the divided palate and uvula, the cleft sternum with exposed heart, the congenital exomphalos, the denuded and imperfect urinary bladder, the open perineum, the spina bifida, and other similar monstrosities. On the contrary, too energetic an operation of the latter law may tend to incorporate two organs, naturally separate, into one, as in the case of monophthalmia; the eyes being at first in the human embryo, as in most of the lower animals, on the sides of the head, and verging to the mesial line only in proportion to the advancement of its organization; or to effect the closure of parts which should have remained open, as in the case of an imperforate vagina. A person ignorant of this law would probably feel a good deal surprised on being told that the possession of two organs in the place of one may arise from defective developement, and of one organ instead of two from the developement being excessive; but such is nevertheless often the case.”—p. 30.

The second chapter, on the unity of organic structure in animals, presents this important subject in a manner more clear and accurate than we have yet seen in any English book. We are so much afraid of misleading our readers by any attempt to explain this doctrine in the brief space allotted to a review, that we must reluctantly refer to the work itself, and content ourselves by quoting the following passages:

“Such, then, is a rough sketch of the correspondence between the several organs of the different tribes of animals in their mature state; a correspondence strikingly illustrative of the hackneyed precept, that nature, in all her works,

Acts not by partial, but by general laws.

But it remains to be particularly noticed, and it is a strong presumptive proof of the alleged unity of their organic structure, that each individual of every tribe of animals, as has been already incidentally remarked, appears to pass, in the course of its organogenesis, through every gradation in this respect between the lowest tribe of all, and that to which it is ultimately to belong; and consequently that the human embryo, at first, like the rest, a kind of zoophyte, must have passed through every possible gradation, in order to arrive at the perfection of man. Of these transitions,

made by the various tribes of animals from a lower to a higher grade of existence, *with the qualifications specified when it was denied that an immature animal of one tribe is ever quite identical with a perfect animal of any lower grade*, we have examples in some of the metamorphoses which are continually going on before our eyes.

"Thus an immature molluscos animal corresponds *very nearly* with a zoophyte, an immature animal of the family of annelida with a molluscos animal, an immature crustaceous animal with one of the annelida, and an immature insect, in the state of larva, with one of the annelida, and in the state of pupa, with one of the crustacea. The same thing occurs also in the vertebrated tribes; an immature frog or salamander, for example, being *very nearly* a fish, and so forth; but it is in tracing the individual organs in their progressive evolution during their fetal state that this transition becomes most remarkable.

"Thus, to say nothing of the developement, in the embryo of each superior tribe, of its proper lungs, from the prototype already mentioned, it is a remarkable fact, that even the gills of the molluscos animals, (which are supposed in insects to become wings, as bivalve shells become elytra,) and those of the osseous fishes, which have no corresponding organ in the superior tribes of animals when mature, are met with in all at one period of their progress to maturity. The larvæ of the batrachian reptiles have been long known, as already remarked, to possess external gills, which they only gradually lose in proportion as their lungs become elaborated; but it has been only recently ascertained that similar gills exist, in a rudimental state, in the fetusses also of the higher orders of reptiles, of birds, and even of mammals, when they have passed through each about one-sixth part of their period of incubation or uterogestation. These rudimental gills, which present the appearance of little projections or plates, bordering transverse clefts on each side of the pharynx, are connected together anteriorly, and traversed by arterial loops precisely in the manner of the external gills of fishes. They have been particularly noticed in the fetusses of many serpents and lizards, in that of the fowl, and in those of the ox, sheep, hog, rabbit, dog, and man; and furnish certainly one of the most beautiful illustrations of the essentially identical structure of fishes, and perhaps even of molluscos animals, and of all the superior tribes; the only difference appearing to consist in this, that where the animal is to turn out an aquatic one, the organ corresponding to gills is evolved at the expense of that corresponding to lungs, while the opposite change takes place when the animal is destined to be terrestrial."—p. 54.

Again, at page 61, Dr. Fletcher observes :

"Do we not then appear to be justified in presuming, as before said, that all tribes of animated nature, with respect to their several organs, start, as it were, together, that the germ of each of their organs is in all the same, and that they subsequently differ from



each other only or chiefly in their arriving at their appointed goal sooner or later; those of the zoophyte (the zero of animal existence) reaching it almost instantly; those of the molluscous and articulated animals (annelida, crustacea, and insecta) successively later; those of the fish, reptile, bird, and quadruped, each more tardily than the preceding; and those of man (the maximum of such existence, "the paragon of animals") the last of all? But it must be constantly kept in mind, that this is true only with respect to each individual organ, not with respect to the sum of them all; so that it is no objection to this doctrine, that the human embryo at no period of its organogenesis so far resembles a lower animal, that it can easily be mistaken for one. To this effect it would be necessary, as already remarked, that the development of each organ should bear the same relation to that of every other in the former as in the latter, which is sufficiently well known not to occur; and that this circumstance furnishes additional proof of a fact which is only just beginning to be understood, that each organ, during its elaboration, is in a great measure independent of every other, and grows, as it were, *per se*. Had this not been the case, it is obvious that the pace of all the organs must have been the same; and had the human embryo been at any given time a fish in one part, it must have been at that time every inch a fish, and so on. As the matter stands, however, it is not at any period, with respect to the sum of its organs, like any other created thing; but being, like the celebrated fossil skeleton of the *Pterodactyle Longirostris*, a kind of fish in one part, a kind of reptile in a second, a kind of bird in a third, and a kind of quadruped in a fourth, it cannot well be mistaken for any thing but what it is. The alleged unity, therefore, is strictly of the isolated organs alone, not of those collections of them which go to form the various tribes of animals; and consequently the admission of this doctrine to its fullest extent has no tendency, as before explained, to confound any of the established distinctions in natural history."—p. 61.

And again:

"Nor is it merely as a matter of curiosity that speculations on the unity of structure in the corresponding parts of different animals are interesting; since, if they do nothing else, they at least afford a satisfactory solution of many cases of monstrosity, which in former times were absurdly referred to a *lusus naturæ*. If it be admitted that each organ of the human embryo passes, during its gradual elaboration, through so many inferior types, and that certain causes may arrest this elaboration in any stage of its progress, it will be easy to understand those numerous cases in which the human heart, for example, has been found with an open foramen ovale, and those, progressively more and more rare, of a defective septum auricularum, of only one auricle, of a bifid apex, of a defective septum ventriculorum, of only one ventricle, and, lastly, of a heart altogether single, the order of the frequency of such malformations being almost exactly proportioned to the near approach



which each implies of the organ towards perfection; since, regarding as the most common circumstance of all the full development of this organ, it is of course more likely that such development will be arrested at a late period, when it is receiving its last touches, than at an early period, when its broader characteristics are being imposed. Upon similar principles are to be explained the instances of a double aorta, or vena cava, (upper or lower,) of a sinuated stomach, of a branched or double uterus, of a non-descent of the testicles, of a spinal cord still traversed by a groove or ventricle, of a brain deficient in either a portion of its posterior lobes, or a septum lucidum, corpus callosum, or other commissures, those parts being here, as well as in the heart, most frequently defective, which are naturally the last to be added. The same explanation may be applied to the various recorded instances of a want of extremities, upper or lower, (in place of which there is commonly a rudimentary finger or toe, reminding us of the first attempt at such an extremity in the serpent,) as well as to numerous other analogous monstrosities. And if it be considered that the development of each organ is in a great measure independent of that of all the rest, we shall have no difficulty in explaining why monstrosities by defect are so often confined to individual organs; and, in fact, the circumstance that they are often, although by no means constantly so, is a proof of the independence in question."—p. 70.

The two concluding chapters of Dr. Fletcher's work embrace the following sections, each admirably worked up and complete:—On the Tissues and Fluids of Plants and Animals in general, p. 84. On the Individual Tissues, p. 89. On the Individual Fluids, p. 110. On the Principles of Plants and Animals in general, p. 124. On the Proximate Principles, p. 127. On the Ultimate Principles, p. 136.

The writer of this very imperfect and brief analysis of the first part of Dr. Fletcher's book begs leave, in concluding, to express the gratification he experienced, in finding his views concerning the lymphatic system to be exactly similar to those put forward by Dr. Fletcher, who (note p. 115) concludes some powerful reasoning on this subject with the following observation:

"It is a common-place and erroneous view of the matter to regard the lymphiferous and chyloferous vessels otherwise than as instrumental, *essentially* to circulation, and *adventitiously* only to absorption. They are in every respect analogous to veins, and are equally continuous with the arteries, as originally assumed by Bartholin, and proved by Nuck, Cowper, and Ruysch, as veins are; and the Hunters and their school have done an irreparable injury to science, by diverting the minds of physiologists from this relation."—Note, p. 115.

Now, in a lecture published in 1827, Dr. Graves advocated this opinion, and contended that the lymphatics should be considered as the veins of the white tissues, and of the white blood.

Of course Dr. Fletcher had not seen the lecture in question, or he would have noticed it, as containing a very full and minute exposition of the very doctrine concerning the functions of the lymphatics, which he himself now advocates, and considers so important; a doctrine, by the way, also promulgated in 1828, by the celebrated Carus. With respect to the functions of the lymphatic glands, it seems probable that they are destined to elaborate some change in the white blood before it rejoins the red. In fact, the lymphatic glands may be considered as the liver and spleen of the system of white blood, placed so as to prevent its sudden admixture with the red, an admixture which might prove prejudicial.

We had intended, when we commenced this article, to have distributed the space allotted it, impartially between Dr. Fletcher and Professor Alison, but we find that we have been unwittingly led away to such lengths by the seductive pen of the former, that no room remains for saying any thing of the latter, except that his *Supplement* is worthy of the *Outlines of Physiology*.

This supplement contains 73 pages: they are, however, of the greatest literary specific gravity, and outweigh in value many voluminous works. The following are the subjects discussed: 1. On Vital Action in General. 2. Of the Laws of Vital Contractions. 3. Of the Circulation in General. 4. Of the Motions and Sounds of the Heart. 5. Of the Causes of the Motion of the Blood in the Arteries and Capillaries. 6. Of the Composition and Organic Structure of the Blood. 7. Of the Coagulation and Vital Properties of the Blood. 8. Of Nutrition and Secretion in General. 9. Of Absorption. 10. Of Glands, and their Secretion. 11. Of the Skin, and its Excretions. 12. Of the Physical and Vital Properties of Nervous Matter. 13. Of the Animal Functions. 14. Of Respiration. 15. Of Death by Asphyxia. 16. Of the Connexion of Respiration with Animal Heat, and with Muscular Contraction. 17. Of Digestion. 18. Of the External Senses. 19. Of Voluntary and Instinctive Motion. 20. Of Generation.

ROBERT J. GRAVES.

*Observations on the Remedies and Practice of the late Mr. St. JOHN LONG*; now conducted by LEWIS C. KINCHELA, A. B. T. C. D. M. D., Licentiate of the Royal College of Surgeons in Ireland.

THIS *brochure* of twenty pages, may be considered as the manifesto of the successor of the notorious Long, who attracted so

much attention some years ago, and afforded so much scope for the exercise of their peculiar talents by the gentlemen of the long robe. We should not touch the matter, did not Mr. Kinchela attempt to implicate others in his proceedings, by announcing himself as associated with the Members of the Irish College of Surgeons, and other respectable medical bodies. Mr. K. has every right to earn his bread according to his own taste, but it behoves us to let the public know, that there is a tacit understanding among medical men, respecting the regulation of their professional conduct, which, however, frequently outraged, is still cherished by those who live for something else besides the sordid pursuit of gain. For Long there was an excuse, although not a justification; he was a clever, unscrupulous, adventurer, who availed himself of an inviting opportunity. We can easily believe that such a man may at the outset, have perceived that it was his destiny to live by the exercise of his talents, in relation to a certain feeble-minded and uneducated although wealthy and influential class; as the instinct of the fox guides him to the rabbit warren and the fowl house. But Mr. Kinchela has had the advantage of a liberal education, and association in early life with gentlemen; nay more, he has, as far as we can learn, hitherto sustained an unblemished reputation in the exercise of his professional duties, which renders his present course matter of regret to his acquaintance. Indeed, if it had been otherwise, we should not have considered ourselves called on to notice the matter.

Mr. Kinchela begins thus: "Having become possessed of the *secrets* connected with the practice of the late Mr. St. John Long," (by the way, the man's name was plain John, the St. John was a mere *ad captandum*, *nomme de guerre*. "I offer the following observations to public notice, though aware that in so doing, I subject myself to animadversion from two classes of persons, namely, those who may be influenced by self-interest, and those who, though actuated by high and honorable motives, may still allow their better judgment to be biassed by feelings which should long since have subsided." We conclude that we belong to the class who animadvert on Mr. K.'s observations from motives of *self-interest*, and under apprehensions of being prejudiced by his anticipated success; but it is not so, we really entertain no such fears; our object is merely to endeavour gently to detach him from that branch of the profession to which we belong, and place him in connexion with that popular department to which his interests have conducted him. What are "the feelings which should long since have subsided?" If they be those which every good man experiences when he reverts to the consequences of Long's practices, their



painful nature renders their subsidence desirable; and when Mr. K. says in the next paragraph, "with past occurrences I am in no wise connected;" he obviously feels that persons may justly experience something like indignation respecting them.

"Many objections," says Mr. Kinchela, "have been raised against Mr. Long and his system, most of them I *now* believe to have been unfounded. The principal points were, that he was not a *medical* man, and that his remedies and the mode of using them were kept secret. As the first of these cannot in any degree apply to me, I shall notice it no farther than by saying, that science has often been indebted to *others*, who like him were not professional. The second objection (if it be one) must, I fear, still exist, and the reason is simply, that it was necessary to satisfy Mr. Long's executors in the sum of *ten thousand pounds*, before they would deliver up the necessary papers and documents to me." As to Long's not having been a *medical man*, we are quite sure no one ever troubled his head about the matter. The profession can at all times afford abundance of charlatans, fully as ignorant as those who are not connected with it by the feeble bond of a piece of parchment. We cannot help smiling at the idea of the debt which science owes to Mr. K.'s predecessor, and although we cannot acknowledge it, we must admit, that his example affords a fact to illustrate the history of civilized man, as he is in the nineteenth century. But the ten thousand pounds paid for the "necessary papers and documents." Where did that come from? Surely our author did not quit the banks of Nore with such a sum in his pocket, to embark it in so promising a speculation. There are strange reports abroad about the matter, and insinuations that Mr. K. is not permitted to reap all the advantages of this ten thousand pounds worth of *secrets*, but that certain persons enjoying opportunities of forwarding this most laudable undertaking by patronage and influence, are personally concerned in the success of the scheme. We hope for the credit of the parties alluded to this is not so, for, however free from any thing incorrect the transaction may be, and we believe it is altogether so, the meddling of such persons in matters of this nature is much to be regretted.

Mr. Kinchela goes on to inform his readers of what every boy knows, that active remedies may be introduced into the system by the lungs and skin, and then with great composure announces that "the practice may appear novel, but it is certainly feasible, and I assert that I can now affect, by inhalation alone, many of the different organs of the human body as I heretofore could by medicines taken into the stomach." The writer may set his mind at ease on the score of novelty, to which



he well knows the plan has no claim whatsoever ; and as to his newly acquired influence over the different organs, we hope it may prove as profitable as he supposes. Again, "It is true, that I may not produce such immediate or violent effects, nor should I wish to do so, but I can produce the same effects in a more lasting degree and without risk of debility. The kidneys, skin, and liver yield freely to the inhaling process, and the alvine secretions improve in quantity and quality. By inhalation other organs than those I have mentioned may be acted on, *certain obstructions* removed, and healthy discharges obtained, even though other means may have proved inefficient." We must admit, that our worthy countryman has worded his puff of promises even more dexterously than some of the same calling who have had more experience ; but summed up, it is merely a promise that any one, who smokes his magic hookah, shall enjoy all the advantages of purgatives, sudorifics, diuretics, deobstruents, but above all, of emmenagogues. Let no man who expects to reap a harvest in this field, ever forget that "*certain obstructions*" are always to be removed without the slightest risk of disappointment.

Mr. Kinchela proceeds: "The external use of medicated steam differs not essentially from that of inhalation, except that I employ it solely as a *local* remedy, as in certain diseases of the throat and ears, or in affections of the joints, particular ulcers, &c. It is perhaps still more useful in diseases of *certain passages*, encouraging healthy discharges, and allaying both pain and irritation." The words in italics are so in the original, and the remainder of the paragraph contains a promise that the "medicated steam, even in cases absolutely incurable of these parts, *checks*, though it cannot cure the disease." The eulogy of the *local* effects of medicated steam on *certain passages*, is so obscurely worded, that we do not pretend to comprehend the matter ; we conclude that it is rendered intelligible to patients by verbal explanations. We really were not before aware that this somewhat peculiar mode of practice constituted part of Long's *secrets*, and we think the public announcement of it proves that Mr. Kinchela is not yet master of the *system* of his clever predecessor.

Mr. St. John Kinchela, for so we suggest he should entitle himself, next proceeds to the subject of the secret of all secrets, THE LOTION. "I now come to the *lotion*, that lotion which has excited so much surprise, and of the effects of which such contradictory accounts have been circulated. Numbers have extolled its virtues, while others have denounced it as caustic and poisonous. I have used it extensively ; I have conversed with many to whom it had been applied ; I know the ingredients,

and I unhesitatingly affirm, that singly, or collectively, they are absolutely innocuous as the ingredients of any of the numerous liniments in daily use, and that to none of them can the term caustic and poisonous be, with any sense of truth or propriety, applied." We agree altogether with Mr. Kinchela Long; the lotion we believe is nothing more or less than some trumpery rubefacient or blister, and the only objection to its use is, that it was in the hands of a person so profoundly ignorant, that he was not aware that a common stimulating liniment, sinapism, or blister, might cause gangrene if applied for too great a length of time, an occurrence not likely to take place in the hands of the present possessor of the *secret*. As a rubefacient, we learn "that it creates a determination of fluids to the surface, increases insensible perspiration, gives activity to the capillaries, dissipates congestion, and by cuticular absorption some of the *mild* ingredients may be introduced into the constitution;" but the latter being a tender point is not much insisted on. As a blister: "We now come to the application and use of the lotion as a means of procuring and encouraging a palpable discharge of matter. By the former process of sponging, we are guided to this ulterior step, for by it we are enabled to form a certain judgment of the exact spot from whence the matter is likely to flow. Let us suppose the lotion applied over an extensive surface, steadily and equally; of this surface one *particular* spot alone will exhibit the signs of a tendency to a discharge of matter, and this happens without regard to the different texture of the skin in different parts; on the contrary, it seems to depend on the presence or influence of disease, for it almost invariably occurs that these signs appear in or close to a part either evidently diseased or else locally affected by constitutional disturbance." Now here we have the marrow of the secret; the patient is in fact told her case has some obscurity about it, but that all that can speedily be removed by the magic lotion: the sponge is applied, "steadily and equally, one particular spot exhibits the signs of discharge of matter close to the diseased part within, or the part *locally affected by constitutional irritation*." Verily the lotion is a perfect divining rod in the hands of this medical man of secrets, and as certain a guide to the real ore of the mine, as the hazel wand of the geological Charlatan. The difference between Long and Kinchela, as regards this matter, is, that the former probably believed that a disease within was indicated by a patch without—the latter knows the contrary.

Mr. St. John Kinchela Long concludes by saying, "There was not, perhaps, in the profession, an individual who entertained stronger prejudices than I did against the remedies I now ad-

vocate; I was prejudiced because they were introduced and used by a person who was not *one of us*, because I did not know their nature or composition." Make no apologies, good Sir, circumstances alter cases, and London is a much finer place than Kilkenny. We wish you all the success you desire; treat the matter *en philosophe*; shrug up your shoulders, and adopt the consoling reflection.

————— "Populus me sibilat; at mihi plaudo  
Ipse domi, simul ac nummos contemplor in arca."

We owe our friends on the other side a good turn, and if we can discharge the debt by a supply of rubbing doctors and fumigators of certain passages, we may balance the account. John loves such better than his meat, he swears he has Magna Charta for it, and we rejoice to see him indulged. All we ask, however, is, that Mr. St. J. K. L. will not "write himself," A. B. T. C. D., Licentiate of the Royal College of Surgeons in Ireland. Let him read the chapter on the sword, in Sterne's Sentimental Journey, and from it he may perhaps learn his duty. Seriously, we really see no criminality in the proceedings; on the contrary, we think it fortunate that the concern has passed into the hands of a person not likely to destroy life from ignorance; but we think it would be only fair for Mr. Kinchela to return his diplomas, for many are inclined to think he is no longer "one of us."

Since writing the above, it has occurred to us that we may, perhaps, have dealt too severely with Mr. Kinchela, and that, with more sagacity and foresight than ourselves, he anticipates that state to which the profession is rapidly and inevitably advancing, and gains a few years on the period when the science of medicine shall be the art of making the weakness, foibles, and ignorance of mankind a source of revenue, without reference to its original object. We have, perhaps, among us more Longs than we are willing to admit. We can see little difference between the man who, availing himself of the columns of a newspaper or the pages of prostitute journals, has the effrontery to announce a remedy, notoriously inert, to be in his hands a cure for a fatal disease, than the avowed empyric, who makes a mystery of his nostrum.

*Elements of Bedside Medicine.* By Dr. STEWART THORBURN.

It has often occurred to us, that one of the fairest methods of disposing of a new work might be, to print the title, preface, and contents, without offering an opinion as to the value of the



production. We were induced to think of such a plan, from the want of confidence reposed in reviews latterly, in consequence of the prostitution of the art of criticism to trading purposes, as well as the notoriety of the fact, that the opinions offered, being often those of inexperienced and unknown persons, were considered of little value. We are determined to make the experiment in the present instance, and allow Dr. Thorburn to speak for himself; as well for these reasons, as because the book defies all criticism, every page, every paragraph, nay, almost every sentence being calculated to provoke controversy, without a definite object. We might as easily make an analysis of Butler's *Anatomy of Melancholy*, or Peter Bayle's *Dictionary*. Dr. Thorburn is a man of industry and perseverance. We doubt whether any one in existence has waded through such a mass of medical printing; but it must be admitted at the same time that he has done an important service, by proving that one, at least, has had the courage to fathom the great "*mare magnum*" of trash which has burst upon us in latter years, like one of our moving bogs on a previously fertile and cultivated country. We most heartily recommend the work to the admirers of the modern medical jargon, which has enabled so many pretenders to deck themselves in the borrowed plumage of plundered predecessors. We feel no inclination to quarrel with Dr. Thorburn, but we cannot overlook his uncourteous allusion to Mr. Abernethy. Does Dr. Thorburn, in calling that ornament of British surgery a buffoon, mean to range himself with the assassins of character who assailed that good man, and probably shortened his life? We cannot believe it; the tone of his book leads us to consider him incapable of so unworthy a course, and the cultivation of his mind renders it very improbable that he would undertake an office hitherto performed by the most vulgar and stupid of the contributors to the medical periodical press. The less Dr. Thorburn says about any man's *affectations* the better. We are willing to look upon the peculiarities of his book as the result of natural oddity of character, but it savours somewhat of that school where the gratification of personal vanity impels men to seek the "bubble reputation" in the exhibition of novelties and production of paradoxes, rather than in the disinterested pursuit of truth.

The following is the title page, with some abstracts from the table of contents and index to the chapters annexed:

"TITLE.—Elements of Bedside Medicine and General Pathology; or, General Disease-Discourse, with a Sketch of the Origin, Progress, and Prospects of Clinical Medicine and Surgery, followed by an Exposition of the Creeds of Medical Materialism and Vitalism; and a Confession of Mixed Medical Faith, entitled, Vegetable,



Brute, and Human Organizationism, &c. &c.; the whole chiefly grounded on a digested range of select analytical and condensed translations; with eductions from the writings of standard authors, French and British. By J. STEWART THORBURN, M. D."

"PREFACE.—It is by a faithful perusal alone of its subject-matter as a connected whole, (not by an examination, however impartial, of its detached portions,) that any literary production, and particularly one devoted to the exposition of scientific subjects, can be fairly estimated. Explanations, therefore, in respect of the *matériel* of this volume, and the manner in which it is disposed, in connexion with the object for which it is submitted to the public, are confined to a few remarks of a very general nature.

"By *quarrying* the chief facts and views contained in the subjoined range of select authorship, and working them up in accordance with a digested plan, I trust I have succeeded in *architecting* a literary edifice, which may be considered in some degree worthy of being occasionally *tenanted* by the mind of the clinical student of this country."

"The title page is intentionally, it may be said *necessarily*, copious. It embodies a just summary of the scope and prominent points discussed in the following sheets, which, together, constitute an aggregate of four parts, consisting of twelve sections."

"With the current of the text, the conduct of different governments in patronizing, or standing aloof from, the cause of legitimate medicine and the pure independence of her *FACULTY*, are occasionally remarked upon, in connexion with the probable state of the profession, as influenced by the force of *OPINION* now *commanding* long deferred *REFORM IN THE MANAGEMENT OF HOSPITALS*, and of those nuisances of nuisances, the dispensaries of Great Britain. The last-named institutions, in addition to directly marring (by the gross manner in which they are permitted to be abused) the success of the most efficient members of the profession, (of those, namely, who have to stair their way upwards, as practitioners, from the indigent to the more opulent grades of the community,) and otherwise degrading the caste of physicians and surgeons, as men of education and science, virtually prove as very hot-beds in the production of general disease, which, to an inappreciably baneful extent, is disseminated by dispensing levees among the inhabitants generally of all populous cities."

"TABLE OF CONTENTS.—*The origin and developement of Clinical Institutions in different Schools.* Etymology and epochas of the Clinique. Primitive medicine of the Babylonians and Persians. Asclepiades. Hippocrates. Visionary medical philosophies. Plato. Labors of Galen criticised. Fall of the amphitheatre at Fidenum. Epoch of the creation of hospitals. Schools of Alexandria and Dschondisabour: their character. Amien Marcellin—Almanzor the Brave—Ali Abbas the Wise. Interesting inquiry—By whom were hospitals first instituted in connexion with seminaries of medical learning.

“*Estimate of the merits of the Arabians.* The poets Lebid and Goldsmith. Heartless assertions of Petrarch and Boccaccio. Spain overrun by the Saracen-Moors—Influence upon the Progress of Bedside Medicine. Hospitals of Seville, Toledo, and Cordova. Preservation and destruction of literature. Library of the Escorial—Ecclesiastical Bigotry—The Convert Zegri—Cardinal Ximenes. Universities in Spain. Acme of the civilization of the Mohammedan world. Ali Abbas the Wise. Sciolist book-worms—Decline of science—Medical fanatics—Receding tide of literature. Works of Avicenna, Rhazes, &c. Era of delusions. *First epoch of the Clinique*—State of medicine from the end of the fourteenth till the middle of the seventeenth century—Reflections. Estimate by different authors. Martial’s epigram upon an ultra-enthusiast at Rome.”

“*France*—Political convulsions—The Reign of Error and Terror:—influence upon the Progress of Bedside Medicine. Efforts of Bordeu, Vicq-d’Azyr, and Cabanis. Schools of France simultaneously provided with Clinical Professors. Desault. Corvisart’s public and confidential Appointments on the first day of the Consulship: Magnanimity of his character—Napoleon’s respects for. Corvisart’s hearted adherence to the interests of the Emperor—His Clinical Pupils. Multiplicity of the Cliniques in France. Clinical Professors. Fouquet:—his brilliant endowments. Professional enthusiasm of Delpach. Lallemande of Montpellier:—his zeal and perseverance. Obstetrical Clinique of Strasbourg, Secondary schools. Concluding remarks. In what the Clinique consists. Surgical Clinique at Edinburgh. State of medicine in America (?), Turkey, and in China. Physicians of the Celestial Empire.”

“*Vegetable, Brute, and Human Organizationism.* Evils of loose and inexact phraseology. Ambiguous use of terms—Specifics for. Verbal and real questions. Indistinct Meanings attached to Terms. Medical condescendences to be ‘boxed.’ Opening of the question at issue. What is meant by ‘organizationism?’ Contractility, sensibility, motion, and feeling. Congress of the functions. What is *life*? Cullen. Burns’s transcendentalisms. Blood! Attraction! ‘Life once more modified!’ Ideas of Smith, Alison, Aristotle, Beclard, Roche and Sanson, Thomson and Prout. Plurality of vital principles contended for. Very present helps in time of need. Algebraic notions of Barthez. Professor Thomson’s strictures. Queries. Prichard on the doctrine of vital principle. Views of Plenck, Allen, and Dr. Prichard. Organism—Organic ‘remain.’ Contrast. Governing cause of organism—The energy of? Merits of a hypothesis, as a theory! ‘Life’ is not vital action, according to Dr. Prichard! ‘Vitality’ consists merely in—? Only explanation of growth and existence! Indirect revival of Cudworth’s philosophy? Queries and remarks upon Dr. Prichard’s strictures. Assumptions. Analogy. Vital Problems. Other queries and remarks. Nothing like ‘leather’ and ‘enthusiasm.’ Untrammelled examination of opinions. A theorem in scientific

criticism. Reply to Dr. Prichard's 'Review of a Doctrine.' Bichat. Copland. Richerand. Elliotson. Cuvier. Steeple-chase! Diversions of Purley and others. Queries at the root of physiological belief. Is life a result, or a superaddition? Berzelius's history of organic existence. Proposition—Corollary. Dr. Prout's postulates. The Parisian Pythagorasses. 'The rule of adoption' exemplified. What is the distinct question here at issue? The relation of organism and life. Dr. Fletcher's appeals to the eye—His arguments in disproof of the vital principle. What is the cause of organization? Thing organizing—Thing to be organized.

"How was the first human being made? Remarks. Our trustworthy information upon this point. Finite's reasoning—Infinite's revelation. Revealed premises—Reasoning grounded upon. Ascertained physiological data. Remarks upon Genesis, chapters I. and II. Themes which exhaust volumes of thought. Views defended on vital points of this creed. The oldest authentic record in existence. Grounds of scientific appeal to Jew as to Giaour. Remarks; and then two homely-put questions. Matter and mind—How proved to exist? Existence of vitality equally undeniable. Extension of the evidence of our senses. What proof have I of the existence of others? Ultimate facts. *Conservation*. A query or two. Elementary similars, if not identicals. Diagram of the forming of organization. General characteristics. Diagram of life. Diagrams of vegetable and brute beings. Synthesis of man—*A trinity in unity*. What is 'mind?' Have brutes souls? Principled materialists. Animal and vegetable soul. King Solomon. Are *soul* and *mind* identicals? Marked characteristics of the human mind. Imagination. Judgment. Function and action. Attributes of nervous matter. Argument. Modifying attributes of the super-added soul. Summing up. Sancho-Panzaism. Recapitulation. Conclusion. Conclusion of the creed of vegetable, brute, and human organizationism. Conclusion of the confession of medical faith."

At the same time we have to remind our readers that they will frequently find the text to contain little more than the index. For instance, in sec. 3. part 1. we find "Khun's observations—'Cui bono?'—Sir John Ross. Stethoscope. Percussion. Lithotomy—Piorry's sound measurer. Tactus Eruditus—*Quaque versum* pressure. Gnawing the nails. Generalization. Hippocrates—Bacon—Herschel." Yet all this farrago is disposed of in about two pages. "Khun's observations" and "Cui bono" occupy twelve lines, "Sir John Ross" five, "The Stethoscope" half a page, "Percussion" about as much, "Lithotomy" the same, "Piorry's sound measurer" seven lines. But then the text contains a chapter on "Smelling," of six lines, not advertised in the index. The essay on the "Tactus eruditus" extends to eleven lines, and the "*Quaque versum* pressure" article to ten. The chapter on "Gnawing the nails" is so



valuable, that we cannot resist giving it to our readers in full ; it is as follows:—" It may be observed that the habit of '*gnawing the nails*' should be studiously avoided by the medical student ; not merely because the habit is filthy and vulgar, but because it blunts and destroys the nice sensibility to impressions whose seat is just where the nails overlap and protect the *axilla* of the tips of the *digits*." As our readers may be anxious to know what the Doctor has to say about Sir John Ross, we are sorry that we cannot gratify a curiosity so natural, not being able to discover why that well-puffed commander was towed to the "bedside," unless it be that the name is a good gull-catching bait.

## NOTICES OF NEW BOOKS.

The following works have been received, exclusive of those already reviewed in this Number :—

"*On Blood-letting*. By JAMES WARDROP, M.D.: being an account of the curative effects of the Abstraction of Blood ; with rules for employing both local and general blood-letting in the treatment of diseases." This is a re-publication of materials already communicated in detached parts ; both the character of the author and the matter of the book justify us in saying, that the practitioner has an opportunity by purchasing it, of acquiring much information in a convenient form, for the moderate sum of four shillings.

"*On Diseases of the Liver*. By Dr. CONWELL." This is an 8vo. of 500 pages, price fourteen shillings, which our anxiety to discharge pressing arrears of business disables us from reviewing at length. In it Dr. Conwell has endeavoured to contribute the result of experience acquired during twenty years daily treatment of diseases of the liver, especially as they present themselves in Europeans resident in India. The work is published for the information of practitioners in general, but more particularly for those practising in India and other hot countries.

"*The Obstetricians' Vademecum*. By Dr. RYAN." This is the ninth edition of this popular manual, which is now so well known, that any explanation of the nature of its contents would be superfluous.

"*On the Proximate Cause of Cholera*. By Mr. PROTHEROE SMITH." This is a pamphlet of forty pages, to shew, as



far as we can judge from a hasty glance, that this disease consists of three stages, "an inflammatory or feverish state, or one of excitement; secondly, collapse: and thirdly, consecutive fever, typhus, or debility."

"*De L'Influence des Professions sur la durée de la Vie par le.* Dr. LOMBARD de Geneva." This we noticed from the journals in a former Number, and will probably recur to it in our next, as well as to a paper of the same author, on the use of the Aconitum Napellus, in the treatment of acute rheumatism.

"*A Manual of Practical Midwifery.* By JAMES REID, M. D.: 12mo. price 5s. 6d. with wood cuts." A pocket volume, almost exclusively confined to the subject of "labour;" the author destines it for the use of students and junior practitioners.

"*British and Foreign Medical Review, or Quarterly Journal of Practical Medicine and Surgery.* By Dr. FORBES and Dr. CONOLLY, the Editors of the Cyclopedia of Practical Medicine and Surgery, published by Sherwood, Gilbert, and Piper." This is the first number of a new medical periodical, "not intended to contain original communications except in the form of critical essays; or any reports of cases or extracts from books or journals published in Great Britain, except in the shape of analytical or bibliographical notices." It is to be published every three months, two numbers to form a volume, at six shillings for each number, of about 300 pages.

We speak with sincerity when we say, that we wish this journal the success it deserves. The personal character of its conductors affords a security, that none but those who have the education and feelings of gentlemen, shall be employed in its management; and consequently, that its readers shall not be disgusted by those offensive personalities which a certain class of writers involuntarily indulge in. To the profession in Ireland it will prove particularly valuable, as we have reason to believe, that its conductors are not likely to join in the unceasing abuse of our institutions, which characterize the majority of the London medical journals in their relation to this country. Another circumstance is favourable to its success. The editors do not live in London. They are removed from the temptations to which they should be daily exposed in that great market, where reputation good, bad, or indifferent, is bought, sold, or exchanged, as openly as their fish in Billingsgate, or their cabbages in Covent Garden: we hail its appearance as evidence that the spell is broken, the "tall bully may lift his

head and lie," but the day of "cushioning" is gone. Edinburgh, Dublin, Glasgow, Newcastle, York, Leeds, Manchester, Liverpool, Birmingham, and Bristol, are Londons now.

"*Dublin Dissector*, 12mo. pages 546, 4th edition, Dublin, Hodges and Smith. By ROBERT HARRISON, M. D., one of the Professors of Anatomy and Physiology in the Royal College of Surgeons of Ireland." This is a new edition of a work which is, no doubt, well known to many of our readers. It claims our present notice not only on account of the many improvements, alterations, and additions it contains, but also as it now, for the first time, bears the name of its author. It may be considered as no small merit in this work, to have already passed through three editions, to have been used in almost all the medical schools in Dublin, as well as to have been in good repute in those of other countries, and all this without any of that favour or influence which the name of its author might by possibility obtain for it.

It is not for us to inquire into the reasons which occasionally induce writers in various branches of literature, to send their productions into the world either under a fictitious title, or what amounts to the same, without any name whatever.

We consider that Dr. H. has acted wisely, and but justly to himself, in acknowledging the authorship of this laborious and useful work, and which, we do not hesitate to say, is infinitely superior to any other work of the same nature with which we are acquainted. The present edition contains not only the accurate descriptive anatomy of the various systems of which the human body is composed, but it also gives a concise and clear arrangement of the relative or surgical anatomy of those several regions, which demand the especial attention of the practitioner. Brief but clear physiological remarks are also occasionally stated, whenever the connexion between structure and function is clearly established, while in a work of this practical nature, the author very properly abstains from any lengthened discussion or literary display of the conflicting opinions of others. In one other point, this edition of the *Dublin Dissector* appears considerably improved, namely, in the introduction of morbid anatomy, in connexion with the normal or natural state of parts.

Pathology deservedly ranks so high, that the medical student cannot too early apply his attention to it, and as few dissections can be made without observing some deviations from health, we consider the brief enumeration of the most important and the most ordinary appearances in this respect, as a very valuable addition to a practical treatise of this sort, while at the

same time, the author very judiciously keeps in close view the main object of the work, that is, descriptive anatomy.

In a work of such extent, it would be out of our power to make copious extracts, or even to compare the execution of different parts, but it appears to us, that the anatomy of the nervous system is very full and accurate, as also that of the different articulations of the human body.

*"Silliman's American Journal of Science, October, 1835."* This number is entirely devoted to a most valuable paper by Dr. Hildreth, on the bituminous coal deposits of the valley of the Ohio.

*"An Introduction to the Study of Practical Medicine, &c. By Professor MACROBIN, of Aberdeen."* This is the first part of an outline of the leading facts and principles of the science, as taught in a course of lectures, delivered at the Marischal College of Aberdeen. It comprehends the pathology and treatment of congestions, inflammations, hemorrhages, dropsies and fevers. It contains an excellent digest of the present state of our knowledge on the subjects which it treats of, arranged in a clear and comprehensive manner, and delivered in a chaste and accurate style. The work, though intended principally for students, will be found equally instructive to practitioners, and to both therefore do we recommend it for perusal and study.

*"Catalogue of the Museum of the Royal College of Surgeons in Edinburgh."* The first part of this work, containing a description of the preparations in the pathological department, has been just completed. The value of the rich and beautiful museum at Edinburgh will be much enhanced by this catalogue, which, while it possesses all the advantages of brevity of description, is sufficiently explicit to direct attention to the leading circumstances shewn forth in the preparations. Allusion to this work is associated with the recollection of an amiable and distinguished man, prematurely cut off in his career of benevolence and usefulness, the late PROFESSOR TURNER, to whose knowledge of the nature and object of the several preparations, and judicious assistance in arranging them, the principal value of the work appears to be due.

*"The Cyclopædia of Anatomy and Physiology, Parts III. and IV. By Dr. TODD."* Since our last notice, two more numbers of this valuable work have been published, containing the termination of the article Arachnida, by Dr. Audouin; Arm, Artery and Axillary Artery, by Mr. Hart; Vena Azygos and Bladder, by Mr. Harrison; Injuries and Diseases



of Arteries, by Mr. Porter ; Articulata and Anatomy of Birds, by Mr. Owen ; Articulation, by Dr. Todd ; Asphyxia, by Professor Alison ; Anatomy of the Axilla and Back, by Dr. Benson ; Bile, by Mr. Brande ; Diseases of the Bladder, by Mr. Phillips ; Blood, by Dr. Edwards ; Morbid Condition of the Blood, by Dr. Babington. In a former number we noticed the articles written by most of the present contributors, and the mode of treating the subject adopted by them. Of those who now appear for the first time, we have Mr. Porter, Dr. Benson, and Dr. Alison. Mr. Porter's article on Injuries and Diseases of Arteries, is a methodical condensed summary on this important branch of surgery, constructed from the works of the most approved writers on this subject, and illustrated by facts derived from the author's own practical experience, which has obviously been very considerable. It is to be hoped, that we shall in future meet Mr. Porter's name more frequently in the discharge of our editorial functions. He writes with facility, and his language is terse and perspicuous, most valuable qualities in a writer of the present period, when much valuable information is suffocated in its birth, by being buried in a heap of diffuse verbiage or declamatory flourishes. Dr. Benson's article on the Axilla is an elaborate and complete description of the surgical anatomy of this important "*region*," as the Parisians now-a-days call such spaces. The account contains all that a student requires in the dissecting room, or the practitioner to refresh his memory previous to operation ; and is altogether worthy of a demonstrator in the School of the College of Surgeons. Dr. Alison's article on Asphyxia, is an argumentative physiological inquiry, respecting the manner in which death is produced in asphyxia. The important leading facts are collected and contrasted, and the legitimate inferences separated from the hasty conclusions of the numerous physiologists, who have devoted themselves to the consideration of this most interesting subject. A perusal of this article is calculated to impress upon the mind of the practitioner, the importance of making himself acquainted with the principles necessary to guide him in his management of persons apparently drowned, or having otherwise animation suspended.

" *A Treatise on the Prevention and Cure of Consumption.* By R. LITTLE, M. D., London, pp. 160." This is one of the works which the sufferer from incurable disease will grasp at, in the vain hope that in its pages he will find the cure of his malady. Too many of these have lately appeared. The eternal changes are rung on iodine, inhalation, counter-irritation, spirit of turpentine, emetics, mercury, blood-letting, laxatives,



tonics, diuretics, and diaphoretics. On iodine indeed, Dr. Little rings a triple bob maximus; he "*rubs*" it on the chest, and has thus "*repeatedly found*" that he could remove all symptoms and signs of phthisis. Such a statement must be corroborated by other evidence, and until that is produced we shall suspend our judgment, and in the mean time refer the curious to the work itself.

"*Rational Exposition of the Diseases of the Lungs and Heart.* By C. WILLIAMS, M.D., London, second edition." We are happy to observe, that in the second edition of this work, the value of which has been so long admitted, the author has extended his observations on the physiology of the heart. Dr. Williams is an investigator of the first order, and we doubt not, that he will add much to what he has already done. It is almost superfluous to for us to recommend his work, so distinguished for its general accuracy, clearness, and research; and for an excellence in which certain of its cotemporaries are lamentably deficient.—We mean its condensation.

"*New and Complete Manual of Auscultation and Percussion, applied to the Diagnosis of Diseases.* By M. A. RACIBORSKI, M.D., translated by William Fitzherbert, B.A. London, pp. 201." An attempt to condense the labours of Avenbrugger, Laennec, Andral, Louis, Bouillaud, Piorry, Pigeaux, Rouanet, Kergaradec, and others, into a post octavo of 200 pages. If Dr. Raciborski's manual be complete, how unparadonably diffuse must these writers be. The besetting sin of the age is imperfect knowledge, and "manuals" of all kinds are the favourite works of those who study medicine not for its own sake, and content themselves with the least possible amount of information. The work, however, is useful from its containing matter which will be, no doubt, new to many students of medicine.

"*Clinical Illustrations of the most important Diseases of Bengal, with the Result of an Inquiry into their Pathology and Treatment.* By WILLIAM TWINING, General Hospital, Calcutta, second edition. Calcutta, printed at the Baptist Mission Press, 1835; two vols. octavo." This is an excellent work, and must prove a most valuable acquisition to all who are destined to practise medicine in the East. We likewise recommend many of Mr. Twining's observations to our lay brethren, whose civil duties expose them to the effects of hot climates, particularly in Hindostan. The first chapter of forty-four pages on the climate and seasons of Bengal is most interesting, and comprises Mr. T.'s observations on tropical hy-

giene, dysentery, diarrhœa, liver complaints, and diseases of the spleen, occupy the remaining part of the first volume of 481 pages. The second volume of 438, treats of cholera, continued, intermittent, remittent, and congestive fevers. We intend hereafter to extract some most valuable passages from Mr. Twining's work, particularly those relating to the employment of venesection in the cold stage of ague, a practice first recommended by our friend Doctor Mackintosh, and now generally adopted in the East Indies, whenever the paroxysm of intermittent is attended either with inflammation or congestion of internal organs. Mr. Twining, in the concluding part of the second volume, speaks at length of the constitution of the natives of India. This part of the work is replete with matter of the greatest physiological interest.

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## SCIENTIFIC INTELLIGENCE.

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*Chloride of Soda in Ague.*—In the *Gazette Medicale de Paris*, 12th December, 1835, we find a series of ten cases of intermittent fever cured by chloride of soda. The dose was half a drachm, dissolved in four ounces of water, and given immediately after the fit. The reporter is Dr. Lalesque. Dr. Munaret has also published some similar cases. The subject deserves further investigation, and claims additional attention on account of the undoubted efficacy of the chloride of soda in typhus fever, as exhibited in the fever wards of the Meath Hospital during the winter of 1835-6.

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*Amennorrhœa cured by the application of Sinapisms in the Mammæ.*—In the *Gazette Medicale de Paris* for August last, p. 400, we find an account of the successful application of sinapisms to the breasts in cases of amennorrhœa, a method of treatment valuable as an auxiliary to the means adopted for the improvement of the general health, and to those which determine to the uterus. We beg leave to observe, that the application of sinapisms to the mammæ, now so universally adopted in France, in amennorrhœa, was first recommended in the *Dublin Journal of Medical Science*.

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*Fractures of the Bones of the Pelvis.* By Henry Earle, F.R.S.—“The diagnosis of some of these accidents,” as Mr. Earle truly observes, “is at times obscure, and the extent of the injury cannot be ascertained during life.” Any communication, therefore, likely to throw light on so difficult a subject, especially when coming from the pen of a gentleman of so much experience, is of great value. A leading object in Mr. Earle’s paper is, to direct the attention of the profession to a “characteristic symptom” which existed in several cases which came under his notice, and which has been overlooked by other authors, namely, a sinking in, or loss of prominence of the trochanter of the injured limb, so remarkable that it “appeared nearly on a level with the anterior spine of the ilium, and could with difficulty be felt.” In the cases published by Mr. Earle, this symptom appears to have been particularly characteristic, and obligations are due to him for having made it known to us. But there are reasons for apprehending that many such accidents occur in which this symptom is not present to serve as an auxiliary in the diagnosis. The fact of the symptom never

having been before noticed, in itself creates a suspicion that it is not one of ordinary occurrence; and the certainty of a complete absence of it in a case of fracture of the pelvis in the direction of the acetabulum, reported by Mr. Houston in the 22nd Number of this Journal, regarding which it is stated, that "the foot admitted of rotation inwards and outwards, and in these motions the trochanter always took part, lying in its natural place, and exhibiting the usual degree of projection," leaves no doubt that this particular symptom is not characteristic of every fracture of the pelvis, even when traversing the acetabulum.

It would be satisfactory, therefore, to have determined, under what circumstances it occurs, and what particular modification it betokens; and as Mr. Earle has not helped us by any remarks on this point, we consider ourselves at liberty to offer a few suggestions, which have arisen out of the perusal of his paper. The explanation of the phenomenon in question must be looked for in the effects of the lesion on the mechanical configuration of the joint; and some of the circumstances noticed by Mr. Earle, both as regards the symptoms which were present during life, and the examination of one of the cases after death, would appear to carry with them a solution of the problem, and to render his report the more valuable, as supplying us with a diagnostic mark of a particular variety of fracture. One or other of two conditions must obviously be present in such an accident, to account for the flattening of the trochanter in connexion with an unbroken state of the femur: either the middle part of the side of the pelvis, carrying with it the acetabulum, must be driven inwards, or the bones constituting the acetabulum must be so far broken or separated as to permit the head of the thigh bone to pass through the lesion into the pelvis: and that one or other of these conditions were present in all the cases reported by Mr. Earle, appears obvious from the account given of them. In the first patient, who was cured in eight weeks, but who died subsequently of another disease, the dissection demonstrated "that the fracture had extended in two directions through the acetabulum; that there was an extensive comminuted fracture of the ilium, and that the os pubis was broken in three places." It is also stated that rotation of the limb "was accompanied by a very sensible crepitus when the hand was placed over the hip joint." In the second case "the whole limb could be moved with great facility in different directions, and in rotation and abduction a sensation was communicated to the hand as if the head of the femur sank more deeply than natural into the acetabulum." And in another case in which "the trochanter was below its level, there was also some crepitus felt when the limb was rotated." In all these cases it is obvious that the nature of the injury in the bone was very much alike, viz. that the central piece of the innominate was so loosened as to allow of being pressed inwards by the head of the thigh bone, and to be productive of that characteristic symptom—flattening of the trochanter without general shortening

of the limb. In the first case, the post mortem proved that there was a comminuted fracture with "displacement" of the middle portion of the os innominatum; and in the other, the same phenomena of flattening and crepitus distinguishing the first were, no doubt, the consequences of the same kind of injury. For these reasons, we are disposed to consider the symptoms pointed out by Mr. Earle, viz. flattening of the trochanter and crepitus as "characteristic" of that particular modification of fracture of the pelvis, which consists either in a comminuted state of the cavity of the acetabulum, allowing the head of the femur to pass through into the pelvis, or, in a double fracture, loosening the central portion of the os innominatum and permitting of a sinking of it into the cavity.

It is satisfactory to know that such accidents are not of a very fatal nature, as in four cases, reported by Mr. Earle, recovery took place in a moderately short period of time. Two are stated to have been cured in eight weeks, and a third in three months from the time of the accident.

In addition to the foregoing cases, others of a more complicated nature are related. In one, the symphysis pubis and sacro-iliac symphysis were torn asunder; the prostate gland was torn away from the bladder, leaving a large aperture communicating directly with the cavity of that viscus, and the rectum was lacerated, giving rise to so much hæmorrhage, that the blood flowed freely from the anus, and ran through the bed on the floor. This patient lived forty-eight hours. An extensive incision having been made, during life, in the perineum, a large quantity of blood and urine was evacuated. The finger introduced through the incision entered the bladder, and on every occasion of touching the trigone, gave rise to a most urgent desire to make water, thus affording, as Mr. Earle remarks, the strongest possible evidence of the correctness of the opinion that this portion is endued with a peculiar sensibility, and that the sensation of a desire to make water is first excited here; a position which it at first appears difficult to reconcile with the well known fact, that this part of the bladder is most exposed to the continual drip of the urine as it enters from the ureters. Mr. Earle was enabled also to ascertain that the mucous membrane at this part remains quite smooth when the rest of the bladder is thrown into folds.

In case five, a singular and complicated condition of injury followed a fall on the left foot from a height of a three-pair of stairs window. The calcis and astragalus were broken into numerous fragments; the whole of the metatarsal bones were separated from the tarsal; the whole os innominatum was separated at the symphysis pubis and sacro-iliac symphysis, and was forced upwards to a considerable extent; the common iliac vein on that side was torn through, and the pelvis was filled with blood. This patient died in about an hour after the occurrence of the accident. Mr. Earle observes, "it is worthy of remark that in this case, notwithstanding the extent of injury sustained by the foot, the force should



have been so great as actually to separate the symphysis pubis and sacro-iliac symphysis, and to drive the whole os innominatum upwards, yet that there should have been no fracture of the neck of the thigh bone nor of the acetabulum. Fracture of the neck of the femur is said to be sometimes caused by perpendicular falls; but I never yet met with an unequivocal case of such an accident."

The author strongly and properly "urges the propriety of a cautious examination of the urethra in every case of suspected fracture of the pelvis; next to extensive bleeding, the most alarming and certainly fatal occurrence is, effusion of urine. The former, it may not be in our power to control or obviate, but the latter we may often prevent, and, by timely assistance, save the patient. Whenever it is clearly ascertained that the urethra is ruptured, and the catheter cannot be passed into the bladder, it is right at once to make a free incision in the perineum, and thus allow of a free exit for the urine." In many doubtful cases of fracture of the pelvis, an examination with the finger per anum will enable the surgeon to detect the nature and extent of the injury."

All this advice, though not for the first time offered, is good and sensible, and we cordially re-echo Mr. Earle's testimony in its favour.

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*Disposition of the Arteries in the erectile tissue of the Penis.* By Professor J. Müller, of Berlin.—The greater number of anatomists who have studied the erectile tissue of the penis by means of injections, have been content with filling the veins of this organ: and though the structure of the venous sinuses of the corpora cavernosa and of the dilated veins of the corpus spongiosum urethræ is well ascertained, there is still very little known of the mode of termination of the smallest arteries of this tissue. It was generally thought that the capillary arteries affording nutrition to the penis, carry the blood into the capillary veins, from whence it passes into the venous sinuses; and that erection depends on the retarding of the circulation in these venous cavities. By means of a successful injection of the arteries of the penis, Professor Müller has discovered, that besides the capillary branches that afford nourishment to this organ and transmit the blood into the capillary veins and venous sinuses, a great number of very remarkable appendices which are in communication with the smaller arteries, as well in the corpora cavernosa as in the corpus spongiosum urethræ. It appears probable that these appendices play an important part in the phenomena of erection, and contribute to detain in the tissue of the penis a greater quantity of blood. The best means of illustrating the two arterial apparatus consists in injecting the principal artery of the penis above its division with wax, coloured with vermillion, and of a medium consistence. Then, having made a longitudinal section of one of the corpora cavernosa, wash away every portion of the injected matter that has got into the venous sinuses. We can then see very plainly the ramifications of the arteries destined for nutrition proceeding along the



internal side of the venous sinuses, and becoming smaller and smaller until they are lost in a capillary mesh-work, so fine that the divisions of it cannot be perceived by the naked eye. Independently of these divisions of the nutritive arteries, an attentive examination exhibits another distribution of arterial branches of different form and calibre that spring at right angles from both the great and small arterial trunks. These branches are about the hundredth part of an inch in diameter, and about the twelfth part of an inch in length. They are seen easily with the naked eye; they project in the excavations of the spongy substance, and terminate by a cul de sac, without any sub-division. These short arterial trunks are looped as it were in semicircles, and have been termed by Professor Müller, the helicated arteries. Professor Müller thinks that these helicated arteries are like the filaments of the vine in form, and have some connexion with the phenomena of erection. But experiments and observations are wanting to shew us what is the disposition of these arterial branches in the state of erection and of non-erection.—*Arch. Gen. Nov. 1835.*

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*Preservation and Propagation of Leeches.*—At a decussion on this subject at the Academie Royale, M. Noble, the physician to the hospital at Versailles, communicated an observation that he had published in 1832, respecting the glazed reservoir established in his hospital, and added a new fact in favour of this material, viz. that leeches are not only protected against the cold, but find a receptacle for their cocons. Potter's clay also protects them from the influence of storms—an influence so fatal, that in 1823, M. Desriusseau, an apothecary at Versailles, who at the time kept them in plain water, lost 600 in a few days.

In other respects potter's clay offers no advantage in renovating leeches that have been applied, for they disgorge but slowly in it. The best way of making such leeches take is, to press or pinch their tails.—*Arch. Gen. Nov. 1835.*

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*On Puerperal Fever—Letter from Dr. Samuel Cusack to the Editors.*

SIRS,—To use the words of the late experienced Master of the Lying-in Hospital, Doctor Collins, no subject has stronger claims on our attention than puerperal fever; and as one who has devoted much time to the investigation of that disease, and enjoyed no small opportunities of observing its phenomena in the Lying-in Hospital, during the Mastership of the late Doctor Pentland, and amongst the poor of the south side of Dublin, while in charge of the Wellesley Female Institution, I trust you will afford a place in your Journal for a few observations, arising from a perusal of the part of Doctor Collins' work which treats of puerperal fever.

I may remark, contrary to what Doctor Collins supposes, that puerperal fever was exceedingly prevalent amongst the poor of the south side of Dublin, in the early part of 1828. In a paper published by me in the January number of the Edinburgh Medical and Surgical Journal of 1829, which has been favourably noticed

by several writers, and confirmed in its views by the observations of others, subsequently published, it is stated, that females whose constitution had been impaired from any cause, mental or physical, who had suffered from hæmorrhage antecedent to or during parturition, or been the subjects of protracted or harassing labours, were more liable to the asthenic forms of puerperal inflammations than persons differently circumstanced. Doctor Collins's experience has led him to form an opposite opinion, although his premises strongly corroborate my view of the subject, and consequently overturn his.

To prove that females who have suffered from tedious and fatiguing labours are not particularly liable to puerperal fever, he exhibits a table at page 385, shewing that of 84 cases, where puerperal fever occurred, 71 were delivered within twelve hours, while amongst those whose labour had extended from 12 to 61 hours, only 13 cases occurred. The fallacy of this conclusion will, however, at once become evident, by referring to the table at page 22, shewing the number of females delivered during his Mastership, and the duration of their labour. Thus of 15,084 persons delivered within 12 hours, only 71 puerperal cases occurred, or one in about 212; while amongst 748, the number of females whose labour lasted from 12 to 61 hours, 13 cases occurred, or so large a proportion as one in 58, clearly shewing a correspondence between the duration of labour and liability to the disease.

The large proportion of females delivered of first children attacked with puerperal fever tends also to prove the same point, the average duration of first deliveries being longer than subsequent ones. It is not, however, as Doctor Collins supposes, a "strong fact, in opposition to the opinion, that persons whose constitutions have been previously impaired are more liable than others to puerperal fever," as it does not necessarily follow that the health of such persons may not have been previously impaired; and, admitting even such not to be the case, the greater duration and severity of labour may cause, in first cases, what previous ill health may predispose to in others.

The cases, however, brought forward by Doctor Collins would seem to invalidate the opinion, that the health of women delivered of first children was less likely to be impaired than others. It is, indeed, worthy of observation, that the only instances where a deranged state of the constitution, existing previous to parturition, is noticed by Doctor Collins were, with one exception, (95 page, 447, who is designated as a poor starved creature), first cases. Thus of 17 fatal cases where the labour was in every respect natural, three were unmarried women, one of whom was forced into the hospital, knowing the fever at the time to be prevalent, and is described as being dejected and in a bad state of health; while of the married women, one was brought to the hospital on a common car 20 miles, and was in a bad state of health during her pregnancy; another had her eyes black and bruised from fighting; another with her tongue foul and loaded, having a severe cold

before admission; a fourth had a severe cough when admitted; a fifth is described as having her pulse, from the time of delivery, hurried and her tongue foul, apparently labouring under common fever; a sixth had a putrid child at seven months, shewing a probability at least of some constitutional derangement, all collectively shewing the derangement of health at or previous to parturition.

To prove the influence which *fatiguing* labours have in predisposing to puerperal fever, we may refer to page 130, where two cases are detailed which terminated fatally, in both of which hæmorrhage occurred, requiring manual extraction of the placenta; and in one this substance was so strongly adherent as to require half an hour's cautious exertion for its removal. At page 78 is a fatal case of same disease supervening on an arm presentation, hæmorrhage and manual extraction of the placenta; and at page 182 is a fourth case terminating fatally, where there was also hæmorrhage and artificial delivery of the placenta; and we can testify from our own experience, when puerperal fever is prevalent, this unpleasant occurrence, in such cases, to be by no means unusual. It seems to us, indeed, that the system, in many instances, undergoes a severe shock where the extraction of the placenta is accomplished with difficulty, and that it is much more severely felt than in ordinary cases of turning; and this injury which the constitution sustains is more likely to occur when the retention of the placenta is accompanied by hæmorrhage. It would also appear that the greater liability of the constitution to injury from placental extraction than from turning, might arise from the hand being necessarily placed in immediate contact with the interior of the uterus in the former case, while, in the latter, the membranes intervene between the hand and the uterus. Where the uterus sustains any injury in the separation of the placenta, an additional cause of disease is superadded.

We conceive that where the labour is of such a nature as to lower the vital powers, that the same proneness to disease is produced in a rapid manner, as by those causes already mentioned, whose action, previous to parturition, is of a more gradual description.

We feel, indeed, at a loss to reconcile Doctor Collins's statement, "that the greater liability of females, who have suffered from fatiguing labours, to puerperal disease, does not accord with his experience." With the dread which he has of introducing his hand into the uterus, and the danger which he states to exist of inflammation of the abdomen, subsequent to manual extraction of the placenta, his apprehensions on this point being so strong, that he recommends the use of calomel and hippo as a precautionary measure, even before any symptoms of inflammation indicate its approach.

We feel, no doubt, that the disease under consideration, as stated in the treatise already alluded to, is identical with what we have seen so frequently arise from operations, even of the most trivial kind, in the vicinity of the pelvis of both sexes, in persons



of debilitated constitutions, though modified by the peculiar condition in which the parturient female is placed. I fear, however, that a cause, which perhaps has been over-looked, may occasionally produce abdominal inflammation, namely, the external pressure of the hand on the uterus, which is necessarily had recourse to to restrain hæmorrhage. If such is the case, it should prevent one employing pressure to any greater extent than is absolutely indispensable.

It affords me much pleasure to find that Doctor Collins is impressed with the necessity of discrimination between the different forms of disease, and attributes to its want the opposite treatment recommended by different practitioners. This deficiency, however, has not been invariable; for the disease has been shewn by me to be divisible into three species, the sthenic, the asthenic, and mixed, and the different plan of treatment suitable to each form of disease dwelt on, a classification since adopted by Professor Maunsell in the Dublin Practice of Midwifery.

I am also gratified to find that his views as to the abstraction of blood so closely resembles what I long since advised in my treatise on the subject, viz. that general and large bleeding followed by leeches, and repeated according to circumstances, was applicable to the sthenic species of disease; leeches to the mixed, and that many cases were of so low a character as to forbid leeches and admit only of blisters. See page 396 and 7 of Doctor Collins's work.

I am not aware whether the author is impressed with the value of large doses of opium in the low form of disease, and I agree with him in the opinion which, I believe, he holds, that scruple doses of calomel are not advisable in those cases.

I trust, in this communication, it will appear my object is merely to shew that my opinions have not been overturned by any thing Doctor Collins has advanced; and would beg leave to express my sense of how much the public are indebted to him for the assemblage of facts with which he has furnished them.

SAMUEL CUSACK.

Coolock, January 2nd, 1836.

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*Treatment of Epilepsy by Indigo.*—M. Noble is at present engaged in experiments on the treatment of this disease by the above method. By aid of this substance administered gradually in doses of three or four drachms, under form of an opiate, three persons seriously affected with epilepsy have been cured. The first subject was a young man, aged eighteen years. The fits occurred every eight or ten days, for ten years. Two months have now elapsed without their recurrence. The second person was a young woman, aged twenty, who had been effected for sixteen years, and in whom the fits occurred ten or twelve times a day since the period of menstruation. In six days the fits disappeared under the treatment by opiate of indigo. The third subject was a woman, aged fifty-eight, suffering under epilepsy for twenty years; the fits



occurring four or five times a day. In four days the treatment by the opiate of indigo triumphed over the disease. In the first patient, the indigo raised to three or four drachms, produced some spasms analogous to those produced by strychnine; with two others an active diarrhoea set in, when the medicine was carried to the above dose.—*Arch. Gen. Nov. 1835.*

*Small-pox after Vaccination.*—In the Edinburgh Medical and Surgical Journal for January, Mr. Benjamin J. Bell has given a report of a varioloid epidemic, which occurred in George Watson's Hospital, a charitable institution in Edinburgh for the education of boys, the result of which, the author thinks, is calculated to substantiate the true value of vaccination. The first case occurred on the 30th of May, 1835, the last on the 14th of June following.

At the time of the attack, there were eighty-nine persons in the house; seventy-five school-boys, and fourteen other individuals. Of all these, only three were unprotected by vaccination, or the inoculated small-pox, viz. one of the school-boys, one of the porters, and this porter's child.

The first individual attacked was the porter's child, which had not been vaccinated: the eruption bore every character of distinct small-pox; the child recovered.

The second case was that of the unvaccinated school-boy: this patient died. Both of these children sickened within three days of each other.

No fresh cases occurred for three weeks, when, all at once, several boys were seized with constitutional disturbance and eruption. The two following cases will illustrate the general characters of the epidemic:—

"June 28th, John Blackie, aged fourteen, felt sick and uncomfortable, but did not make any complaint till the 1st of July, when a considerable number of vesicles were seen sprinkled over all parts of the body, especially over the face. These had a distinct central depression with very little surrounding *areola*. They soon became pustular, and dried up in a few days, the constitutional symptoms having abated almost simultaneously with the appearance of the eruption.

"June 29th, John McLean, aged fifteen, became sick, feverish, and oppressed. July 1, an eruption not unlike that of measles, appeared in different parts of the body, but faded almost entirely on the following day, when a few vesicles were observed here and there over the surface. These vesicles were surrounded by considerable redness, but did not attain any size; had no central depression, and speedily disappeared."

Such was the general course and termination of all the cases with the exception of two, who, though previously vaccinated, became affected with genuine small-pox. Of these, one, Mr. H., one of the masters of the institution, died on the twelfth day of the disease; the other, A. Kinnear, aged twelve, of great constitutional delicacy and subject to slight *psoriasis* of the face and leg,

went through the disease with all the characteristics of genuine small-pox, but recovered. With the exception of these two, all the other vaccinated cases, twenty-five in number, passed through the disease in a very mild or modified form.

The exposure to contagion in this school being general, it is very probable that a great proportion of those who remained healthy are indebted to vaccination for their escape. Had the disease broken out among a larger number of individuals, wholly unprotected either by a former attack of natural small-pox or by variolous inoculation, the probability is very great, that few, if any, would have escaped its contamination. The mildness of the attack in the greater number of children exhibits a strong contrast with the horrible consequences which the disease produces in its unalloyed form; and the severity of it in two solitary cases out of such a number, instead of causing us to entertain misgivings as to the anti-variolous influence of the cow-pox should, as Mr. Bell remarks, induce us to investigate more fully the distinguishing characters of genuine and spurious cow-pox; and at the same time to teach to students in medicine this much neglected, though highly important branch of their profession, in order that, as practitioners, their skill in the management of vaccination, and their testimony as to the results of their experience in its efficacy, may have due weight and efficacy. Recent calculations have shewn that, even under the present defective system, the average mortality by small-pox, in London, has been reduced three-fourths since the commencement of vaccination. How greatly might the average be still diminished were the practice universally followed? This surely is a subject well deserving of legislative interference, when we bear in mind the high and patriotic ends to be achieved by it.

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*Pathology of the Uterine Polypi.*—Some interesting observations upon this subject are contained in a paper published by Doctor R. Lee, in the 19th vol. of the *Medico Chirurgical Transactions*. Doctor Lee conceives "that there are at least four distinct varieties of tumours of the uterus, none of which are malignant in their nature, to which the term polypus has been applied: 1st, the fibrous; 2nd, the follicular or glandular; 3rd, the cystic or vesicular; and 4th, the mucous tumour of the uterus. To these ought, perhaps, to be added that variety of tumour of the uterus which consists of erectile tissue, or of cells, and dilated arteries and veins." The fibrous variety he believes to be a modification of the disease termed by William Hunter "the fleshy tubercle of the uterus," which is known not to be malignant in its nature, but frequently to produce injurious consequences by the great size to which it attains. In many instances as it enlarges its density gradually increases, and it may become the nidus for calcareous depositions, which have been ascertained by Doctor Bostock to consist chiefly of phosphate and carbonate of lime. Doctor Lee coincides in Bayle's opinion, "that in twenty out of 100 women, taken indiscriminately, after the middle period of

life, the fibrous tumour is found imbedded in the walls of the uterus, and that they are most frequently met with in the bodies of those women in whom the physical signs of virginity are present." "Fibrous tumours are developed either in the cellular membrane under the peritoneal coat of the uterus, or between the layers of its muscular or middle coat, or immediately between its middle or mucous coats." In the first mentioned situation they may grow to a great size without producing any inconvenience, except of a mechanical nature, owing to their bulk, which may be so considerable as to impede the passage of a child through the pelvis, or to interrupt the functions of other viscera. When the fleshy tubercle is imbedded in the proper tissue of the uterus, should the woman become pregnant, fatal hæmorrhage may be produced by the impediment occasioned to contraction of the organ after delivery, and leucorrhæa, or profuse and dangerous menorrhagia, may owe their origin to the same cause. Should a fibrous tumour be developed in the muscular coat, very near the cavity of the uterus, or immediately between the muscular and mucous coats, it will protrude into the uterine cavity, and, by the action of the organ, may be gradually forced into the vagina, carrying upon it, as a covering, the mucous membrane of the uterus, and sometimes a layer of muscular fibres. In this situation it undergoes various changes of structure in its covering membrane, peduncle, and central portion, and is recognised as a polypus. When the polypus "is covered both by the living membrane of the uterus and a layer of muscular fibres, the peduncle is proportionably thick and short. A longer continuance of uterine action is also required to force a tumour so formidable into the vagina, and the patient not unfrequently dies from irritation and loss of blood, before it has been expelled from the cavity of the uterus." The expulsion is occasionally effected accidentally by vomiting or some violent effort; and Doctor Lee correctly observes, that appearances are thus produced strikingly resembling "those observed in cases of chronic inversion of the uterus." The writer of this notice once assisted Mr. Cusack in removing a polypus, the history of which corroborates the foregoing and some other of Doctor Lee's remarks. The patient who had a tumour, which could be felt above the pubis, hard and as large as a closed fist, was reduced to the point of death by repeated attacks of menorrhagia. The gentleman, under whose care she was, administered a dose of ergot of rye, which was followed by violent uterine pains. At the next visit, it was found that the tumour had disappeared from the abdomen, and a vaginal examination being then, for the first time made, a polypus was discovered in the vagina. The removal of this being determined on, a speculum was passed so as to give a fair view of the tumour, which was declared by several competent judges to be an inverted uterus; the orifices of the fallopian tubes were even pointed out on its surface. Mr. Cusack and the writer, however, adhering to their original opinion, the mass was drawn down and its peduncle divided with a bistoury. It proved to be



a fibrous polypus; and although the peduncle exhibited the open mouths of three or four vessels, not a drop of hæmorrhage followed. The patient rapidly recovered.

The 2nd, or glandular variety of polypus, Doctor Lee supposes to be produced by a morbid enlargement of the glandulæ nabothi. "One of these bodies is sometimes converted into a cyst as large as a walnut or even a hen's egg, and hangs by a slender peduncle from the cervix or lips of the os uteri. It is smooth and vascular, and contains, in some instances, a curdy or yellow-coloured viscid fluid. The tumour produces great irritation, and gives rise to copious sanguineous and mucous discharges from the vagina."

The third, or cystic variety of polypus "consists of a congeries of small vesicles or cysts, filled with a clear or yellowish coloured ropy fluid, which cysts are embedded in a soft, fibrous substance, formed under the lining membrane of the uterus."

The fourth, or mucous polypus, "is a tumour of the fundus or body of the uterus, which grows occasionally from its mucous membrane, or is formed by a morbid change of the mucous membrane itself, which does not acquire a large size, but which seems to be analogous to the common polypus tumour which is formed in the cavities of the nose. It has a large base and flattened form, and in some cases is largely supplied with blood-vessels."

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*Interstitial Inguinal Hernia complicated with Scrotal Hernia.*—

M. Goyrand, of Aix, communicates an observation in a man aged sixty, who has had a scrotal hernia of the left side for ten years, and who, after being at stool, suddenly experienced violent colic, followed by nausea and vomitings. M. Goyrand discovered, in the direction of the left inguinal canal, a tumour, of the form and volume of a partridge's egg, in which sharp pains were felt on pressure. During the efforts of vomiting, a second tumour appeared within the first; it corresponded exactly to the ring, was soft, and easily reducible; its root was direct. M. Goyrand in this case supposes the existence of two hernias at the same time; one recent, and strangulated in the trajet of the inguinal canal; the other of ancient date, scrotal and direct, (the internal hernia of Hesselbach,) but free in other respects. The taxis was inefficacious. An energetic antiphlogistic treatment, followed by castor oil and purgative injections, obtained in forty-eight hours the spontaneous reduction and disappearance of all bad symptoms.

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*Luxation of the Arm.*—*Letter of M. Malgaigne in Vindication.*

MR. EDITOR—The September Number of the Archives contains the analysis of a report on one of my memoirs made to the Royal Academy of Medicine by M. Lisfranc. Allow me to rectify some assertions of his, which do not appear to me sufficiently correct.

"Relative to incomplete luxation," says the report, "M. Malgaigne makes Sir Astley Cooper say, that in this form of luxation



the head of the bone is found outside the coracoid process, and he combats this opinion, which is not that of the English surgeon.

The following is the text of Sir Astley Cooper :

"This dislocation differs from that forwards, under the pectoral muscle, in the head of the os humeri, being still on the scapular side of the coracoid process, while in the complete dislocation forwards it is on its sternal side."

Thus, it is evident that the situation of the head of the bone is accurately defined ; it is always on the scapular side of the coracoid process, in contradistinction to the luxation inwards, where the head of the bone is situated at the sternal side of the same process. These positions I have termed *external* and *internal*. I am aware that MM. Richelot and Chassaignac have translated "scapular side" "*face inférieure*," and thus your colleague has been deceived. It would have been better had he consulted the text.

Two lines lower down he continues: "M. Malgaigne adds, that Sir A. Cooper looks on this luxation as the most frequent, yet the latter has never used these words." If M. Lisfranc had read my memoir, he would not have charged me with words which I never uttered. In fact, what I stated was, that Sir A. Cooper looks on this form of luxation as one of the most common. But it may be objected that the words of Sir A. Cooper are merely that *such luxations are not rare*; wherefore I deem it necessary to transcribe that whole passage from my work, p. 33 of the manuscript.

"When the illustrious English surgeon was last in Paris, I submitted this question to him at the house of M. Amussat. Circumstances did not allow a prolonged discussion. Sir A. Cooper, however, remarked, that his ideas on this subject were unchanged, and that he looked on this luxation as one of the most common."

These ideas are precisely what I combated, viz. the position of the bone external to the coracoid process, and I have been to cite a good authority in the words of Sir A. Cooper himself. I should also complain that the analysis is incomplete, and that it gives reason to suppose that the only support for my ideas were derived from experiments on the dead subject; whereas, I have noticed the symptoms in the living subject, and the anatomical changes after death. But as few authors are satisfied with the analysis of their works, I shall not appeal against that part of the review. I regret, however, that you have not mentioned the favourable conclusion of the commission, namely, the sending my memoir to the committee of publication, to which was added a vote of thanks to the author; circumstances by which any man should feel himself honoured.

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## MISCELLANEA.

**BIOGRAPHICAL NOTICE.**—The late *Dr. Cheyne*.—We have to perform the melancholy duty of recording the decease of Dr. John Cheyne, an event which took place at his seat in Sherrington, Buckinghamshire, on the 31st January, 1836.

Dr. Cheyne was for many years an eminent and successful practitioner in Dublin, where he earned an enduring name, not only for professional learning and skill, but for rare excellencies of character.

To speak of Dr. Cheyne's writings, and of the estimation in which they are held, would be superfluous. Whether viewed with reference to the elegance of their style, or the sound practical precepts and improvements which they inculcate, they hold a foremost rank among the medical works of the day. No man ever maintained, in the circle in which he practised, more respect and confidence from his professional brethren, or a higher character with the public as a skilful physician. In consultation, he displayed a penetration in the diagnosis of disease, and a readiness and sincerity in the communication of his experience in similar cases, which never failed to secure the confidence of the practitioner at whose recommendation he had been called to the attendance. He had, moreover, the enviable quality of observing the most honorable conduct toward the gentleman in attendance with him, without a compromise of the duty which he owed to the invalid: he directed the treatment, without arrogating to himself any merit for its success; and assisted the efforts of his junior, without lessening towards him the confidence of his patient. Dr. Cheyne's punctuality to appointments was another feature in his character which rendered professional intercourse with him peculiarly satisfactory; and even in the days of his most varied and extensive practice, he treated the youngest member of the profession with the same polite consideration, in this particular, as the oldest.

Such was the estimation in which he was held, and such the universal regret at his retirement from practice, that addresses were presented to him from three different branches of the profession, requesting of him to return, and resume his station amongst them; a compliment to an individual unprecedented in the annals of medicine.

But in all these respects the character of Dr. Cheyne falls short, when contrasted with his excellence as a benevolent and religious man. His exterior deportment bore the appearance of indifference to the afflictions which were every day presented to him; but his inward feelings on these occasions were at variance with the impressions left by his visits. His mind was frequently disturbed and his spirits depressed by the scenes of bodily and mental suffering which the practice of his profession incessantly brought under his notice; and his sympathies, instead of being blunted by the habitude of meeting with such objects of compassion, were rendered more acute by the repetition. Indeed, to this source may be traced the seeds of the malady under which his constitution, otherwise a good one, finally broke down. The members of the medical profession are, by the generality of mankind, considered heartless, and insensible to the afflictions which they are called upon to witness; but they may triumphantly appeal, in refutation of the calumny, to the example of Dr. Cheyne, who,

though the circumstances of his profession, while engaged in its duties, demanded an assumption of coolness which brought on him the character of heartlessness, was nevertheless mentally grieved by these scenes, to an extent which deprived him of sleep and appetite, and kept him in a state of perpetual fever. The nature of his practice in his latter years was calculated, in an especial manner, to subject him to excitement of this nature: being chiefly employed in consultations, he was, as is generally the case with medical men so engaged, too often called upon when all hopes of recovery were over, and when his power to do good was unavailing. All this was too much for his sensitive mind; and an expression uttered to a friend, on an occasion of this nature, shows the utter groundlessness of the charge of heartlessness in his case. "I have this day," said he, "visited for the first and last time more than a dozen persons, not one of whom may be in existence to-morrow. I can no longer bear it; I must fly from such scenes of hopeless and helpless affliction." And he justified his declaration, for shortly afterwards he retired to his country seat in Buckinghamshire, and never again allowed his mind to be engaged in such avocations. Of the deep but silent interest which he took in the afflictions of his patients, many living witnesses, can bear honorable testimony; for often has the widow or orphan received from an anonymous hand a restitution of the fees paid to Dr. Cheyne for his professional services, with perhaps an increase of the amount, to avert the possibility of a conjecture as to the source from whence the donation was derived.

The same absence of ostentation which marked the character of this good man, manifested itself in all his dealings. Indeed, the habitual gravity of deportment shown in his intercourse with society in the latter years of his life, and which procured for him the character of an austere man, would appear to have been brought on, in the first instance, by the importance of the duties in which he considered himself engaged, and confirmed, subsequently, by the state of mental distress to which these duties exposed him; for, naturally, and in the early period of his practice, the intercourse of Dr. Cheyne with society was distinguished for cheerfulness and affability, rendering him a most fascinating *tete-a-tete* companion, and the ornament of every circle in which he moved. In short, the whole tenor of his life was marked by high intellectual endowments, the most scrupulous observance of the duty which he owed his neighbour, and the greatest benevolence of disposition: but the main-spring of all these good qualities was—religion. Thoroughly persuaded of the reality of a future and a better state, and in possession of the means of its inheritance, no wonder that his life should have been regulated in accordance therewith. The satisfaction which he himself experienced from this source, while engaged in the bustle and annoyances of professional occupation, is well known to those who were acquainted with his feelings; and the consolation which it afforded him on the bed of sickness, may be learned from his own words, communicated in a letter to a friend, in which he says:



"There is but one subject on which I can dwell with satisfaction, connected with that permanent state of being on which, to all appearance, I must soon enter. On this subject, my views, which are very simple, lead to hope and peace, and give to my existence a comfort much beyond what I experienced in times of wealth and prosperity. Oh! that all my friends could discover my panacea, which is to be gathered only on Calvary." Such were his expressions when nearly blind from an affection of his eyes, and when the approach of mortification of one of his feet, of which he died four months after, had alienated him from all society, and prepared him for a realization of the happiness of that blessed eternity, to the attainment of which his whole life had been, in prospective, devoted.

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*Surgical Society of Ireland.*—Since the publication of our last number, this active society, composed of members and licentiates of the Royal College of Surgeons, and associate members elected from other medical bodies, held several meetings at their apartments in the College. The following papers have been read, and the facts detailed in them elicited much instructive and interesting discussion.

On a Monstrous Human Fœtus without Heart, Lungs, Liver, or Brain, by Dr. Houston.

On the use of Soap Injections in Gonorrhœa, by Dr. Bevan.

On a Case of Diseased Heart, with Aneurism of the Aorta, by Dr. M'Adam.

Cases of Rupture of the Bladder, by Dr. Harrison.

On Fistula Lachrymalis, and Injuries of the Eye, by Dr. Jacob.

A Case of Injury of the head, in which a large portion of a Powder Flask was lodged in the brain, by Dr. Cusack.

On Corroding ulcers of the Uterus, by Dr. Churchill.

On the Origin of the Fifth Pair of Nerves, by Dr. Alcock, containing some new views.

We rejoice to see this society quietly and steadily advancing, notwithstanding the difficulties with which it has had to contend; struggling in its birth against the open hostility of the virtuous gentlemen who engross all the honesty and all the liberality; deserted by others, bound by every tie to support it, and unassisted by any adventitious aid from the meretricious trappings, or extraneous inducements usually resorted to in such cases; it owes its existence and success to its own intrinsic strength. Fifty men, confiding in each other, and united by a common bond of mutual respect and good feeling, will ultimately accomplish objects unattainable by much larger bodies, disabled, by their numbers, from acting in concert or with unity of purpose.

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*American Medical Periodicals.*—An American Journal makes the following observation: "Though the cases and speculations of European Medical writers are copied and re-copied from one city to another continually, it is a rare thing indeed to discover the re-



print of an American medical report in foreign Journals." For ourselves, we can assure our cotemporaries at the other side of the Atlantic, that we have availed ourselves of their valuable labours whenever the opportunity has been afforded us, but we have been utterly foiled in our attempts to secure a regular supply of the American periodicals. In *Ireland* at any rate, the importance of American Medical communication is fully appreciated. We meet with valuable information in their Journals, unalloyed by those personalities which disgrace some of the English Journals, or the insolent tone with which the institutions of our country and the characters of our leading medical men are treated. Let the Editors adopt some plan by which their Journals can be regularly furnished to us, and they may rely on ours being supplied to them with equal regularity. We recommend strongly the transmission by the Liverpool packets, and we can safely say, that they can rely upon the punctuality of the respectable firm that publishes for us.

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*Society of Medical and Surgical Students in Dublin.*—We are sincerely gratified to have it in our power to announce the establishment of a society for mutual instruction by the students of Dublin. The undertaking has been conducted with so much good sense, good taste, and good feeling, that the least sanguine must anticipate the most satisfactory results from its progress. We have attended the meetings since they commenced, and have been greatly pleased by the tone and nature of the proceedings. The communications are made with modesty and candour, and devoid of any premature claim to that perfection which experience alone can confer, or any arrogant exhibition of precocious dictation, which might startle seniors, jealous of encroachment from such a quarter. The debates are conducted with the greatest urbanity, and with studied regard for the feelings of those engaged in the discussion: no captious cavilling or drawling hair-splitting, no concealed personalities under pretence of scientific inquiry, no ebullition of spleen or disappointment in the shape of wrangling or snarling, nothing, in fact, but an exhibition of determination to secure the real objects for which the society has been established. The private affairs of the society are not allowed to engage the time of the members met for more important purposes, by which those nuisances, the loquacious fools who infest institutions and public meetings in Dublin to discuss rules and orders, and rectify financial extravagance in the article of candle ends and sweeping brushes, are placed altogether *hors de combat*. This spontaneous movement on the part of the students, so little in conformity with the prevailing vulgar spirit, or the instigations of the wretched pettifoggers who have been attempting to distract them from the main objects of their pursuits, is most creditable to the Irish School, and the best pledge of its stability and security.

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*The Mock Reformers.*—We have received the letter signed

"*Pacificator*," from a friend in London, and although we cannot concur in his views, we thank him sincerely for the kindness he exhibits toward Ireland and its institutions. He rebukes us for descending to notice "the wretched Irish correspondents of certain London weekly medical periodicals," and especially complains of our doing so in a bantering tone; but let us ask, are there not men who,

"Safe from the bar, the pulpit, and the throne,  
Are touched and shamed by ridicule alone?"

The very observation of "*Pacificator*," that "these productions are disgraceful to Dublin," justifies us in making known the characters of the writers. Our correspondent has obviously never been in Ireland; if he had, he should have learned that men from the very dregs of society occasionally intrude themselves into professions there; and, without education, talent, or a knowledge of the common decencies of life, sacrifice even their own prospects of advancement to the gratification of their savage propensities. Such are the men who supply those productions. From personal knowledge of the fact we can say, that before they, in an evil hour, selected medicine as a means of livelihood, they dared not wear their hats in the presence of a gentleman. They are never met in respectable society; they walk the streets alone, and cautious men, while they pay them the forced civility of a cold salute, plead the apprehension of danger from their tongues or pens as an excuse for the degradation. We indignantly repudiate the insinuation, that these people are specimens of the profession here. We confidently assert, that there are not half a dozen, perhaps not more than four of them, in a city containing about seven hundred individuals engaged in the various branches of medicine, surgery, and pharmacy. It is true that there are gentlemen mock reformers, who see inviting vacancies afar off, and think that patients and pupils might, with great advantage to society, and much to the improvement of science and diffusion of knowledge, be transferred to other channels; but they have as utter a horror of the mere anonymous slanderer as we have. Our correspondent deplures "the practice of mixing up allusions to religion and politics with those angry controversies." Surely he cannot reproach us with any thing of this kind; we have most steadily refrained from the slightest allusion to the subject, and are determined to redouble our caution respecting so objectionable a practice. But there is really no foundation whatsoever for the statements reiterated in the periodical to which our correspondent alludes, respecting a politico-religious warfare between the members of the profession in Dublin. It is merely an attempt, and an abortive one, to restore the circulation of a scouted production, by pretending to act the part of champion for those who have long since begged leave to decline the honor. From personal knowledge of the man who furnishes many of these statements, we can positively say, that his scanty income depends upon the success of his efforts and contrivances to keep alive party feelings among the inexperienced pupils and the lower orders of the community where his profes-

sional practice lies. We really at this moment feel inclined to pardon him for the trick, seeing that his betters are not much more scrupulous, and that he can plead his necessities in extenuation.

Our correspondent demands, "why should we set our faces against all reform and improvement at a moment when the public so loudly call for it." How can he be so simple as to put such a question. It is evident, that even he, with the penetration he possesses, is a victim to the imposture so pertinaciously disseminated for many years, by those to whom professions of liberality, exclusive claims to honesty, and well feigned horror of abuses of their own creating, has been a valuable stock in trade. Once for all we declare most solemnly, and without the slightest apprehension of refutation, that the efforts of the real friends of reform and improvement in Dublin, have had but one difficulty to encounter in the course of many years' labour in the cause, and that difficulty has been the intrigues, vexatious interruptions, and dishonest practices of the mock reformers. By their various subterfuges, a most formidable barrier has been raised against real reform, and a most convenient veil drawn over the delinquencies of the very men who intend to impute to others the shameful practices of which they stand convicted themselves. Among some of these gentlemen, we recognize certain heartless men, who coolly and systematically mix themselves up with controversies respecting medical education and similar matters, without feeling the slightest interest in them, or caring in the slightest degree for the result. Their end is to keep their names before the public, and to postpone that oblivion into which they feel themselves naturally sinking. We sincerely recommend all parties concerned, to consider the course they are pursuing. Dublin now rears its head in competition with the first schools of medicine and surgery in Europe. An annual influx of from seven hundred to a thousand pupils, expending perhaps an hundred thousand pounds annually among its citizens, makes it an object of national importance not to be endangered with impunity by the machinations of traitors, or the selfish manœuverings of shallow intriguers. Since our last, three out of five London Medical Journals have opened their fire upon us and our institutions, we conclude in anticipation of a critical session of parliament. The coincidence is not accidental, we are fully aware of the designs of our enemies, and prepared to meet them; we are girded for the fight, and that fight shall not be with shadows, but hilt to hilt, in the face of our fellow-citizens. The *soi-disant* reformers may rest assured, that they shall individually and collectively have ample opportunity of reaping that harvest of applause, to which their disinterested exertions so justly entitle them, and the lower classes of them may be equally certain, that a determination has been adopted to draw a line of demarcation visible to the public, between those who practise their profession as honest men and gentlemen, and those who pursue the objectionable courses respecting which we have been compelled to animadvert in strong but justifiable language.



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PART I.  
ORIGINAL COMMUNICATIONS.

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ART. IX.—*Report of the Queen's County Infirmary for the Year 1835.* By JOHN JACOB, M. D., Surgeon to the Institution and to the Maryboro' District Lunatic Asylum.

THIS Infirmary, for the excellence and utility of which the county is much indebted to the zealous exertions of Thomas Parnell, Esq., was first opened for the reception of patients under the care of my late father in 1808. It is situated within a quarter of a mile of the town of Maryboro', and is adjacent to the District Lunatic Asylum and County Gaol. The plan of the building is well suited for the purposes intended, ample provision having been made for the comforts of the inmates, as well as for the most thorough ventilation and cleanliness. It consists of basement and first and second stories, each traversed from end to end by a spacious corridore, from which the several apartments open to the right and left. The centre is occupied by two airy stone staircases, which afford separate access to the



rooms occupied by males and females. The wards are eleven in number, thirteen feet high, and sixteen feet square, with a ventilator in the ceiling and over the door. There is a commodious bathing-room, where the patients are cleaned and clad in the dress of the Institution previous to their distribution in the several apartments. Each story is provided with an abundant supply of spring and river water, and with water-closets.

The business of the Institution is transacted by the treasurer, who acts gratuitously; the surgeon; the secretary, who performs the duties of providore and house-steward; the housekeeper; a female nursetender; a male nursetender, who acts as barber, and performs other duties; a porter; three female servants, and a man who acts as janitor, whitewashes, and assists in cleaning. To provide for the more close and constant attendance on the sick, any patient who may be very dangerously ill, or require extra attendance, is permitted to bring in a female relative for the purpose; an arrangement which does not entail any extra expense, and is attended with the best effects in assisting to remove prejudice from the minds of the country people, and in overcoming the disinclination to leave their families, which some entertain. Each case is given in charge to one or other of my apprentices, whose duty it is strictly to watch over it, and inform me of any circumstance with which I should be made acquainted. The house is never left without a pupil when there is any case of urgency, which is so general that I may say the practice is constantly observed. I visit every day, and when occasion requires, twice, or more frequently.

The funds for the support of the Institution are derived from a parliamentary grant of £89; a presentment of £554, raised by county rate; subscriptions and donations, which for the past year amounted to £180; and fines for certain offences imposed by magistrates at petty sessions, amounting within the same period to £155. These, with contingencies, produced a total income for the past year amounting to £993.

The charity is directed and controlled by 151 governors,

who hold quarterly boards, and appoint a managing committee to meet weekly: thirty-four meetings were held within the past year. The payment of twenty guineas constitutes a governor for life; of one guinea, for twelve months; and the regular payment of the annual subscription for ten successive years, also confers the privileges of a life governor.

It may be observed that the annual subscription is in this county, Dublin, and Tipperary only, as low as one guinea; in all other parts of Ireland the law has established it at three guineas. Many advantages appear to me to result from the adoption of the lower rate. It operates beneficially upon the funds, at least so I am led to conclude from the fact that a larger amount is received under the head of annual subscriptions in this county and in Dublin, than in any other county in Ireland. It affords to every individual who may feel interested in public charity, or in the welfare of the poor, an easy opportunity of taking part in the direction of the Institution; and it tends strongly to satisfy the public that the monies levied by taxation for its support are disbursed to the best advantage. In a word, if the corporation be not open, and its affairs well managed, the fault rests entirely with the public. I cannot help here alluding to the painful contrast which exists between the niggard amount of the subscription lists in this, as compared with the munificence of the sister country. It is a humiliating fact that several proprietors of extensive landed property in the county either withhold all support, or bestow but a solitary guinea annually upon the charity, which is principally maintained by county cess, levied off their impoverished and already over-burthened tenantry. Nor is this attributable to apathy or want of due exertion on the part of those who should endeavour to excite the sympathy of the wealthy in its favour. Every means calculated to effect this object have been had recourse to. Charity sermons, bazaars, advertisements, &c., and with some those have not had such effect as might have been hoped for.

It has been already stated that the income of the Infirmary for the past year amounted to £993, the expenditure to £900.

For this sum an average of  $49\frac{3}{4}$  intern patients have been maintained throughout the year, amounting in all to 957, of whom 40 were in the house at the commencement of the year, and 917 subsequently admitted. 11,382 dispensations of medicine and advice to extern patients also took place within the same period. The following table presents a view of the several diseases under which those admitted into the Infirmary laboured. Allowances will, I trust, be made for its imperfections by those who recollect the difficulties attendant on the classification and arrangement of such an heterogeneous collection.

Fever, continued 8 ; remittent 1 ; intermittent 4 ; scarlatina 1, . . . . .	14
Headach 9, hemicrania 1, . . . . .	10
Inflammation of brain and membrane, acute 4 ; chronic 3,	7
Insanity, . . . . .	2
Change of structure in brain, . . . . .	3
Paralysis, including hemiplegia and paraplegia, 12 ; of deltoid muscle 3, . . . . .	15
Hysteria, . . . . .	6
Trismus nascentium, . . . . .	1
Chorea, . . . . .	2
Spasmodic affection of diaphragm, . . . . .	2
Neuralgia of side 1 ; of shoulder 1 ; sciatica 4, . . . . .	6
Heart, palpitation of, . . . . .	7
—— hypertrophy of, 2 ; hypertrophy, with diseased aortic valves 1, . . . . .	3
—— dilatation of, . . . . .	1
Purpura hæmorrhagica, . . . . .	3
Epistaxis, . . . . .	1
Anæmia, . . . . .	1
Throat, inflammation of, suppurative 5 ; ulcerative 7 ; sloughing 2, . . . . .	14
Aphthæ, . . . . .	1
Croup, . . . . .	4
Bronchitis, . . . . .	5

Hooping cough, . . . . .	3
Pneumonia, . . . . .	3
Hæmoptisis, . . . . .	8
Phthisis, . . . . .	5
Empyema, . . . . .	1
Pneumothorax, . . . . .	1
Œsophagus, stricture of, . . . . .	1
Gastritis, . . . . .	2
Dyspepsia, in aggravated form, . . . . .	18
Gastrodynia, . . . . .	3
Stomach, organic disease of, . . . . .	13
Hæmatemesis, . . . . .	5
Obstinate constipation, . . . . .	3
Enteritis, . . . . .	3
Intussusceptio, . . . . .	1
Dysentery, acute 3; chronic 6, . . . . .	9
Peritonitis, acute 2; chronic 1, . . . . .	3
Jaundice, . . . . .	4
Liver, inflammation of, acute 2; chronic 1, . . . . .	3
—— enlargement of, . . . . .	7
Spleen, enlargement of, . . . . .	2
Abdominal tumours, . . . . .	5
Mesenteric glands, extensive disease of, . . . . .	3
Dropsy, general 9; anasarca 11; ascites 18; hydro- thorax 1; hydrops pericardii 1, . . . . .	40
Bladder, inflammation of, . . . . .	1
—— catarrh of, with irritability, . . . . .	5
Urine, suppression of, . . . . .	2
Dysuria, . . . . .	3
Diabetes, . . . . .	3
Amenorrhæa, . . . . .	4
Chlorosis, . . . . .	3
Leucorrhæa, . . . . .	1
Uterus, irritability of, . . . . .	1
—— hæmorrhage from, . . . . .	2



Uterus, acute inflammation of, terminating in abscess, .	1
—— enlargement of, . . . . .	3
—— polypus of, . . . . .	2
—— prolapse of, . . . . .	2
—— cancer of, . . . . .	3
Ovaries, disease of, . . . . .	3
Rheumatism, acute 6; chronic 13; lumbago 3, .	22
Inflammation, erysipelatous, simple 3; gangrenous 1;	
chronic 1, . . . . .	5
———— diffuse of cellular tissue of neck, .	1
———— deep-seated, terminating in abscess of	
jaw 4; arm 2; hand 1; thigh 2; leg 2, .	11
———— of absorbents, . . . . .	4
Abscess of jaw 7; neck 4; arm 3; hand 1; mamma 2;	
thorax 1; back 5; lumbar 9; of iliac fossa, ad-	
joining colon 1; anus 1; hip 1; groin 2; thigh 8;	
knee 7; leg 4; ankle 2; foot 1, . . . . .	59
Gangrene, traumatic 3; sloughing of nates 2; of va-	
gina 1; of feet 1, . . . . .	7
Anthrax, . . . . .	4
Ulcer, of scalp 2; face 3; lip 1; tongue 1; palate 1;	
fauces 1; thorax 1; back 2; shoulder 1; hand 2;	
nates 4; thigh 4; knee 1; leg 55; ankle 1; feet 2, .	82
—— phagadenic, . . . . .	4
Paronychia, . . . . .	8
Onychia, . . . . .	6
Wounds, of scalp 12; face 6; tongue 1; arm 1; hand 5;	
scrotum 2; thigh 3; knee 6; leg 35; instep 1;	
feet 2, . . . . .	74
—— by stab, of abdominal cavity and liver 1; back	
1; thigh 1, . . . . .	3
—— of radial artery 1; of tibial artery 1, .	2
—— gun-shot, . . . . .	3
—— severe bites by rabid animals, . . . . .	2
Pin in œsophagus, . . . . .	1

Contusions, of eyelid 1 ; neck 1 ; elbow 1 ; thorax 3 ; thigh 1 ; knee 1 ; leg 1 ; ankle 3, . . . . .	12
Rupture of urethra 1 ; extensive extravasation into cel- lular tissue of penis 2, . . . . .	3
Fractures, simple, of skull 2 ; lower jaw 1 ; clavicle 4 ; humerus 2 ; forearm 5 ; os innominatum 1 ; neck of thigh-bone 2 ; shaft of thigh 11 ; of both bones of leg 7 ; of fibula 3, . . . . .	38
———— compound, of skull 10 ; nasal bones 1 ; supe- rior maxilla 1 ; inferior maxilla 3 ; of both max- illæ 1 ; humerus 1 ; forearm 2 ; fingers 1 ; leg 8, . . . . .	28
———— complicated, of elbow-joint, . . . . .	2
Dislocation, of the shoulder-joint 3 ; of the elbow-joint 2 ; of the thumb 1 ; of the hip-joint 1 ; of the an- kle-joint 2, . . . . .	9
Burns, of the trunk and extremities 5 ; of the leg 2 ; of the foot 2 ; by sulphuric acid 2, . . . . .	11
Scald, of leg 1 ; of foot 1 ; of fauces, pharynx, œsopha- gus, and larynx, by swallowing boiling water 1, . . . . .	3
Contraction in consequence of burn of elbow-joint, . . . . .	1
Caries, of malar bone 1 ; tibia 1 ; os calcis 1, . . . . .	3
Necrosis, of lower jaw 1 ; femur 3 ; tibia 15 ; bones of foot 1, . . . . .	20
Exostosis of tibia, . . . . .	1
Osteosarcoma, . . . . .	1
Disease of vertebræ, . . . . .	10
Joint, acute inflammation of shoulder 2 ; hip 1 ; knee 2, . . . . .	5
———— chronic disease of elbow 1 ; wrist 2 ; hip 4 ; knee 9 ; ankle 4, . . . . .	20
Hernia, strangulated, . . . . .	2
Rectum, stricture of, . . . . .	2
Fistula, in ano 3 ; in perineo 1 ; vesico-vaginal 1, . . . . .	5
Urine, retention of, . . . . .	16
Urethra, stricture of, . . . . .	1
Paraphymosis, threatening gangrene, . . . . .	1

Testis, enlargement of,	6
Hydrocele,	3
Vagina, excoriations of,	1
Perineum, laceration of,	1
Venereal, primary 30; secondary 21,	51
Gonorrhæa 5; hernia humoralis 3,	8
Cancer, of scalp 2; face 1; jaw 1; lip 4; shoulder 1; mamma 3; penis 2; leg 3,	17
Tumours, encysted, of lip 1; at angle of jaw 1; of thigh 1,	3
Fungus, growths from gums 1; hand 1; foot 1,	3
Hæmorrhagic tumour of lip,	1
Lymphatic glands, considerable enlargement of,	4
Polypus, benign, of one nostril 2; of both 3; of pharynx 1; malignant, of nostril 1,	7
Cutaneous diseases,	15
Eye and its appendages, diseases of; eyelid, encysted tumour of 1; aneurism by anastomosis 1; lippitudo 2; entropium 2; fistula lachrymalis 3; eyeball, wound of 2; ophthalmia, mild 12; purulent 1; pustular 3; deep-seated inflammation of globe 3; ulceration of cornea 4; sloughing 2; granular conjunctiva 3; iritis 3; cataract 4; amaurosis 6,	52
Total,	957

Of these were discharged cured,	590
as externs relieved,	179
and re-admitted,	48
by their own or relatives' desire,	54
for other causes,	14
Died,	22
Remain in house, Jan. 1836,	50
Total,	957

It appears that surgical diseases have been admitted in a much larger proportion than medical. The chronic forms of the latter being less calculated to arrest the attention of the poorer classes, they do not in these cases so anxiously seek admission as when suffering from external ailments; they can, moreover, under such circumstances, longer struggle for the support of their families, and can be treated with greater safety at home than in the more serious surgical diseases, for which the care, comfort, and cleanliness of an hospital are indispensable.

I was imperatively compelled to receive eight cases of continued fever, though contrary to the regulations of the institution. This county is without a fever hospital, except a small house adjoining the village of Abbeyleix, supported from the private charity of Lord De Vesci, into which cases from the immediate neighbourhood are alone admissible. Epidemic fever, of a most malignant form, has prevailed to a greater extent in this country within the past, than for the preceding seven years, and several lives have, I am satisfied, been sacrificed for want of a place for the accommodation of the sick. I was obliged to receive some few destitute creatures into a cabin on my farm, and provide for their care from a small balance of a cholera fund which remained in hands. Under such circumstances it may be well conceived that a few miserable beings who made their way to the Infirmary as the most natural place to seek relief, could not be driven to their almost certain fate of perishing by the road-side; they were disposed of apart from the other patients, nor was any inconvenience experienced from their admission.

Two cases of insanity were received. One of very short standing, which was soon discharged cured. The other afforded a striking example of the tenacity of life, and of the powers of endurance which some lunatics enjoy. Under the influence of a superstitious delusion he effected castration within a few weeks previous to presenting himself at the Infirmary, where he arrived in a state of absolute starvation, having wan-



dered from the County Wicklow with the hope of inducing me to amputate his hand, which he had himself endeavoured to blow off with a pistol-shot, at the loss however of only one finger. He continued obstinately to refuse food for many days, though on admission he appeared in a state of almost total inanition. By the persevering administration of nutritious diet, by means of the stomach-pump, his strength was re-established; the wound went on to heal kindly; he was induced to take his food voluntarily, and was delivered to his friends in safety. I have had several opportunities of observing the extraordinary celerity with which lunatics recover from injuries calculated to endanger the lives of persons enjoying perfect health; their wounds generally unite by first intention, fractures become quickly consolidated, and they rapidly recover from the most serious casualties under very disadvantageous circumstances.

Cerebral disease is a frequent occurrence, and presents itself in a variety of interesting forms. I regret that I am almost totally debarred from the pathological investigations which are so pre-eminently essential to throw light upon these affections. The prejudices of the people are so deeply rooted, that I am almost entirely precluded from the cultivation of morbid anatomy, and many important cases consequently remain undefined and doubtful.

Under the head of spasmodic affections of the diaphragm, I have noted down two singular cases, apparently of irregular hysteria, complicated with derangement of the digestive organs; both were females between sixteen and eighteen years of age, and their symptoms resembled each other so closely, that one description may apply to both.

At frequent and irregular intervals during the day, and without any obvious cause, sudden paroxysms took place; every inspiration was effected by a spasmodic effort, and attended with a sound resembling that produced by hiccup, but infinitely louder and more shrill, so much so as to be readily heard throughout the entire house; considerable uneasiness and

sense of oppression being at the same time felt at the epigastrium. The paroxysm frequently continued for an hour, and left the patient much exhausted. The pulse was accelerated, the tongue loaded, the appetite impaired, bowels confined, catamenia suppressed, and considerable tenderness experienced on pressure over the region of the stomach and liver. The administration of fetid aperients, cupping and blistering of the epigastrium, with a light nutritious diet, invariably afforded complete relief; but the disease frequently recurred in some time after the patient's discharge.

Several cases of purpura occurred amongst the out-door patients, as well as those admitted, which were of extreme severity. In two instances the hæmorrhage from the mucous surfaces was so profuse as to leave little hope of recovery: the posterior nares required plugging, and the free administration of stimulants was found necessary to sustain life. In those of a sthenic character, bleeding and the administration of solution of chloride of soda, in half-drachm doses every three hours, were attended with the best effects. In those of an asthenic description I found the latter remedy to fail, and trusted to acetate of lead and opium, followed up by quinine and sulphuric acid.

For several months a severe affection of the throat, generally accompanied by low fever, has prevailed in an epidemic form. It appeared at the same time with scarlatina, and both frequently ran their course together; such members of a family as might not have had scarlatina being attacked by that disease; those who had previously gone through it suffering from all its symptoms in a severe form, without however any appearance of eruption. The concomitant fever, though sometimes highly inflammatory, was generally of a low type; the inflammation of the fauces extensive, of an erysipelatous character, always attended with considerable submucous effusion, rapidly running into ulceration, and occasionally inducing alarming sloughing. With persons of healthy constitution the disease frequently terminated by suppuration, which, next to resolution, usually

brought the case to the most speedy and favourable issue. The only local application from which much benefit was experienced in the severer forms of the disease was nitrate of silver, either in a solid form or in strong solution, and the constant use of chlorine gargle. Several delicate young persons were carried off by this disease, and some of robust constitution received from it a serious shock.

Affections of the stomach, both functional and organic, hold a prominent position in the catalogue; dyspeptic complaints being very general amongst the labouring classes, induced principally by unwholesome food, consisting of potatoes, which many are obliged to live upon, seasoned only with a little salt, and washed down by a draft of water. I think I may safely say that one-tenth of those who seek relief as out-patients at the Infirmary, labour under diseases of this description, which too frequently terminate in permanent change of structure.

Among the many cases of dropsy admitted, several were of the acute form, originating from exposure to severe weather, or from suddenly suppressed perspiration. Two or three days were in many instances sufficient to establish the disease, which, however, generally yielded to prompt treatment: a full bleeding or two, with large doses of supertartrate of potass, being commonly sufficient for its removal.

The case of hydropericardium was more distinctly marked by external appearance than any I before witnessed. The subject was a young foundling girl, much attenuated, who had for some time suffered from severe palpitation, probably caused by organic disease of the heart; her limbs were anasarious, and effusion had taken place into the peritoneum; the intercostal spaces in the cardiac region were full and prominent, presenting a distinct sense of fluctuation, and each pulsation of the heart communicated a remarkable undulatory movement to the integuments. Palliation of symptoms was for some time effected, but the patient left the Infirmary with little prospect of surviving long.

Numerous cases of erysipelas occurred, both in the Infirmary and generally throughout the country, during the year ; in some instances attended with severe and rapidly fatal inflammation of the absorbents. I have, I believe, within the past year seen as many examples of the latter disease as during my entire previous experience ; in some instances occurring from the most trifling scratch, occasionally commencing in an old and indolent ulcer, and often without any assignable cause. On one or two occasions death followed within three days after the incursion of the attack.

In almost all cases, as well of erysipelas as of inflammation of the lymphatics, I have been in the habit of using nitrate of silver for the purpose of insulating the disease, and with marked advantage, particularly in the former affection. I repeatedly have observed an attack of erysipelas of the leg run along the limb till it met the ring formed by the nitrate of silver, and stop abruptly at that point, as if the patient had drawn on a red stocking. The damping of the surface with a moist sponge, and from six to ten strokes of a pencil of caustic, more or less, according to the delicacy of the skin, are sufficient to produce the desired effect ; the part being left exposed to the air, a dark-coloured vesicle forms in a few hours, which being emptied, the whole inflamed surface usually desquamates in a few days.

The number of casualties has been very considerable. A large proportion of wounds and fractures of the extremities have been caused by inattention on the part of persons having charge of horses and cars, and a custom that prevails of driving without reins,—evils, the correction of which are considered unworthy the attention of the police, yet no inconsiderable loss of life is the consequence.

In two cases of compound fracture, and in one of extensive laceration of the leg, gangrene quickly set in, and the patients refusing to allow amputation, it rapidly extended. In these instances the injured parts became considerably swollen, and distinctly emphysematous, immediately after the receipt of the in-



jury. Emphysema of an injured part is always an unfavourable symptom. I cannot easily account for it, as it sometimes occurs without the integuments in the vicinity of the wound appearing to have been elevated with sufficient force to cause the entrance of atmospheric air, and before gas could possibly be evolved by decomposition; it is too often a forerunner of gangrene, the extension of which is generally indicated by the progress of the emphysema along the course of the absorbent vessels.

Three persons were admitted who had been severely stabbed. During preceding years, in which a week seldom passed without the perpetration in this county of some dreadful outrage, I had but too many opportunities of observing the effects of wounds inflicted by bayonets or similar instruments. Mere flesh-wounds, however deep, usually healed within a few days, but whenever a cavity was punctured, a train of formidable symptoms might be confidently anticipated, frequently proving fatal, if not immediately from the effusion of blood, or from the violence of the inflammatory fever, with as much certainty from the secondary effects produced by the establishment of chronic disease of a serous membrane, or of an injured viscus, the mischief in some instances making most insidious progress. One case I particularly recollect. The individual received a bayonet wound of the back, he placed himself under the care of a surgeon, the wound soon healed, and he was sent home as cured. After a few weeks some pain was felt in the neighbourhood of the wound, respiration became hurried and difficult, and the patient having come to the Infirmary for advice, dropped unexpectedly dead at the gate before admission. On dissection the cavity of the right pleura and serous covering of the diaphragm was found coated to a considerable extent with false membrane, and containing a large quantity of seropurulent fluid. The convex surface of the liver was occupied by an extensive abscess, and numerous adhesions existed around this viscus. From the position of the wound it must, I conceive, have passed through both the pleuræ and diaphragm, and entered the liver; but the

character of the primary symptoms did not, I believe, by any means lead to the apprehension of so extensive an injury.

The unexpectedly favourable issue of the following case makes it worthy of record. A reaper having a quarrel with a fellow-labourer, received a heavy blow of a hook, by which the first phalanges of two fingers were cut completely across; he described them as having been attached merely by a portion of the integuments in front. A large quantity of blood was lost. He hastily wrapped the part up, and came a distance of thirteen miles to the Infirmary. The divided bones were much displaced, and required to be carefully adjusted; they were connected only by a very small portion of the soft parts, but it was not decidedly ascertained whether the vessels had been divided. I have, however, little doubt that such was the case. By the application of adhesive straps and a splint, the corresponding parts were retained in exact juxta-position, and allowed to remain undisturbed for a couple of weeks, the hand being cleansed without removing the dressings. The progress to recovery was uninterrupted, and he was discharged in about six weeks, the wounds being healed, the bones firmly united, and the flexibility of the joints almost perfectly preserved.

The large number of fractures is striking; yet those only of a more serious character, or of the lower extremities, were admitted into the Infirmary. Many fractures of the arm and clavicle, and numerous dislocations, were treated as out-door patients.

A brief outline of the mode of management adopted may not be out of place, the result tends to support the opinion advanced by Dr. Houston on the subject in the last number of this Journal. No time that can be avoided is lost in reducing the fracture, placing it in the extended position, and retaining it so. A large supply of strong tin splints, of various shapes and sizes, with corresponding cushions made of calico, stuffed with curled hair, is always ready. The splints are bent, moulded and fitted as accurately as possible to the uninjured corresponding limb;

cushions adapted to them ; and they are secured upon the limb by means of leather straps with buckles ; a piece of oiled silk being placed next the skin, in case of wound, to keep the cushions clean. If the fracture be of the lower extremity a Desault's splint is usually applied, and secured firmly to the pelvis, to prevent rotation. Should it be found that any of the splints already made might not be suited to the purpose, new ones are readily cut out, a quantity of tin of various degrees of strength, and a pair of shears, being kept always at hand. The part is examined every four or five days, and if it be found, when union has taken place, that the limb is not perfectly symmetrical, little difficulty is experienced while the callus remains soft and plastic, in moulding it into proper shape ; nor does it appear that by moderate degree of torsion or extension, the cure is in the slightest degree retarded. If the fracture be reduced in a short time after the receipt of the injury, it is surprising how little pain or inconvenience is experienced.

By this plan the treatment of simple fractures is found extremely easy, and attended with but little trouble. The pupils quickly become expert in arranging them, and deformity is unknown.

In fractures of the cervix femoris I act upon the presumption that ossific union may take place, and, as I conceive, with beneficial consequences, I have invariably found that the patients on whom most pains had been bestowed to retain the fractured portions of bone in accurate juxta-position and immoveable, ultimately recovered the most perfect use of the limb. I have succeeded to a considerable extent towards effecting this object in the following manner:—The patient being placed in bed, a strong cotton stocking, to either side of which a stout bandage had been sewed along its entire length, is drawn on the leg above the knee, it is then firmly secured on by pinching it up, and sewing it tightly when drawn as wide as it can be stretched. This being done, a very considerable degree of extension can be exercised by means of the attached bandages, the pressure

of which, instead of bearing upon one point, is equally diffused over the knee, calf, ankle, and instep; the closeness with which the limb is embraced, prevents the occurrence of any degree of subsequent swelling, and the necessary degree of counter-extension can be kept up without inconvenience or danger of sloughing; the extremity is next extended to its proper length, and placed in position; the thigh is surrounded with the tin splints and cushions already described, the front one being connected with, and forming a limb of a large splint, on which chiefly depends security from motion. It consists of a shield or plate sufficiently large to cover the greater part of the anterior surface of the abdomen, the sides being hollowed for the reception of the spines of the ilia; from this a limb runs down over Poupart's ligament along the front of the thigh, which it assists to envelope; a stuffed cushion preserves all parts from pressure; the lower portion is secured with the other splints to the thigh by straps; the upper by bandages round the pelvis. A very considerable amount of counter-extension is then made by means of Desault's splint, to which the tails of the stocking bandages are tied; a thick pad is next placed high up between the thighs, and both limbs bandaged firmly together. In this way the leg and thigh of the injured side are used as a lever, the pad between the thighs serving as a fulcrum, and any pressure calculated to cause a shortening of the neck of the bone, or the entrance of the neck into the cancellated structure of the shaft prevented. The bandages running from the stocking to the Desault's splint must be kept from time to time carefully tightened. To derive real benefit from the treatment, the patient should remain from two to three months in bed, and forbear to use the limb for a much longer period. By this method I have had cases recover with little perceptible lameness, but in no instance did I succeed in preventing a slight degree of halt. A laced stocking of Indian-rubber web, with suitable bandages, may be an improvement upon what I have been in the habit of using.

I do not know whether I shall be considered justified in the



course adopted with the following case, though the result fully answered my expectations. A boy, eleven years of age, received a fracture of the thigh about the junction of the middle with the upper third. Splints were applied, and in about six weeks consolidation had firmly taken place. On their removal it was found that the limb was about four inches shorter than its fellow, the bones being considerably overlapped, and the extremity of the upper portion, which was attached at an angle to the lower, pressing strongly against the integuments, through which it appeared likely to protrude. At the end of ten weeks he was placed under my care. The fracture was so firmly united as to appear equal in strength to any other part of the bone. The integuments presented a blush of inflammation, and were tender to the touch at the point where the end of the bone pressed against them, and I felt very doubtful whether I should succeed in breaking up the connexion. It yielded more readily than I had expected. Under extension, steadily applied by means of a lac, the bones gradually separated from each other, and were without difficulty reduced to their proper position. It was not, however, found by any means easy to retain them so. Their points having been rounded off by absorption, and the muscles become habituated to their shortened condition, they easily slipped aside, and glided past each other. It was consequently necessary to secure the splints very tightly, and to keep up considerable counter-extension by means of the stocking and Desault's splint. In six weeks strong union had taken place, and at the end of two months he was discharged without the slightest deformity. In a couple of months more I accidentally saw my patient limping about on crutches; the limb was very much bowed, and presented a more unsightly appearance than ever. On closely questioning him, he confessed that he had got a fall, by which he felt that "the bone had been strained," and afterwards remained crooked. He concealed the occurrence from his friends, fearing that he might again have to encounter the annoyance of a resetting. I had him brought to the Infirmary,

and by confining him to bed, and keeping up a steady lateral pressure with splints, the bone was gradually brought back to a straight line, and he was ultimately discharged with a perfect limb.

Amongst the cases of dislocations one only appears deserving of remark. A married woman fell from a ditch, and displaced her shoulder. She put herself under the care of an humble brother of the craft, called here a "Bonesetter," who having submitted her to certain agreeable manipulations, assured her that after a little time all would be right. Not finding his promises realized, she came, as she said, "to have a trial of me." The head of the humerus was lodged under the coracoid process of the scapula, and admitted of but very limited motion. The deltoid was wasted; and to render the case more satisfactory, she was in the fourth month of pregnancy. I explained the case to her, and she took another week to prepare. I afterwards learned that this preparation consisted in her going to solicit her clergyman to baptize her infant in utero. At length she delivered herself into my hands as if she were going to the scaffold. The exercise of very considerable extension, by means of pulleys, was requisite to remove the bone from its situation. It was then lodged on the glenoid cavity, but it was found most difficult to retain it in situ, as it seemed that the hollow had been filled up, the ligaments so torn as to afford little support, and that the action of the muscles was calculated to displace, rather than maintain it in position. By careful bandaging this object was effected, and the case went on well.

A melancholy proof of the sanguinary spirit of the people is afforded by the extraordinary frequency of fractures of the skull. I have had more experience of these injuries within the last seven years, than should fall to the lot of one person in a civilized community during his entire life-time. On no cases have I bestowed more anxious attention, and in none have I been beset with greater doubts and difficulties. If it were necessary at this time of day to dilate upon the intimate connexion

which necessarily exists between medicine and surgery, no more striking illustration need be selected than these injuries. They require the patient investigation of a philosophic mind, the most careful administration of internal remedies, and frequently the prompt assistance of a dexterous operator. For the treatment of no disease is it more difficult to define general rules. For none does the medical attendant more require to be possessed of resources within himself.

The character of the general symptoms soon after the receipt of the injury, frequently affords but a very imperfect indication of what may be the future progress of the case. Too often have I seen a patient walk to his ward in the full possession of all his faculties, and impatiently submit himself to the restraints of the hospital; yet within two or three weeks, or even days, he may be reduced to a state of hopeless coma. More than once have I had occasion bitterly to repent having allowed the absence of unfavourable symptoms to induce me to delay the elevation or removal of broken fragments; and I have occasionally apprehended that the train of fatal symptoms which supervened after the operation of the trephine, might have been averted had I abstained from interfering. The conclusion, however, to which I have on the whole arrived is, that if the fracture be compound, the broken fragments much and abruptly depressed, if they be comminuted, or detached from the soft parts to any considerable extent, it is on the whole safer to remove them. I have seen so many instances of suppuration of the brain having taken place, under the most vigilant treatment, in cases which were in the earlier stages unattended with unpleasant symptoms, that I cannot help thinking it most judicious to remove every thing calculated to excite or keep up inflammation. To effect this I think it will not be often found necessary to have recourse to the trephine. I feel satisfied that I have frequently seen this instrument used when all the desired effects could have been attained by easier and safer means. In the majority of cases I experienced little difficulty in getting

away such portions of bone as I may wish by a pair of forceps, which I had constructed for the purpose. It in some degree resembles the straight tooth-forceps, the handles being, however, longer, the jaws both longer and more straight, and terminating with fine, strong, and well-tempered points. By means of this instrument a small portion of the broken bone may be seized and brought away with a cautious motion of the hand, care being taken not to allow the bone to turn edgeways, so as to endanger the dura mater. As each portion, however minute, is got away, the operation becomes more easy, and the true condition of the parts within can be more readily ascertained. In some cases the use of a pair of lateral cutting-pliers will be found to assist in making room, and they will be occasionally found useful in cutting away sharp and spiculated portions. I do not mean to say that this instrument can be in all cases substituted for the trephine, but it may in a great many, for which the latter instrument has been heretofore used. I conceive it preferable, as being less calculated to alarm or shock the patient, as it is only used for the extraction of the broken fragments, without enlarging the extent of injury by removing a sound portion of the skull, and as being less liable to lacerate the dura mater, or wound a subjacent vessel; an occurrence by no means uncommon, from the use of the trephine in the hands of an awkward operator. In a few cases, no symptoms of compression being present, I yielded to authority, and refrained from removing fragments which had been much depressed, as for instance, by the blow of a spade. However well the patient might go on for four or five weeks, at the end of that time alarming symptoms generally set in, and he was quickly carried off, the brain being extensively disorganized, and broken down into a semifluid pulp, intermediate between cerebral matter and pus. I have occasionally observed this degeneration to take place when the broken fragments had been removed, or the trephine applied; in such cases hernia cerebri generally appeared, caused, as I conceive, by the projection of a layer of the



brain, in a morbid condition, through the opening, by the accumulation of the disease beneath. This I have upon two or three occasions ascertained by dissection, and on others demonstrated during life, by the introduction of a lancet, and the consequent discharge of a large quantity of matter. We should, however, recollect that the liability to profuse hæmorrhage, which sometimes attends these herniæ, requires a degree of caution in the adoption of the latter step. If, in weighing the necessity for manual interference in cases of injury of the head, we allow ourselves to be exclusively guided by the condition of the patient's mind, or by the absence or presence of the usual symptoms of compression, we may, I apprehend, be led to erroneous conclusions. It occasionally happens that the severest lesions of the brain may be for a time attended with any marked derangement of its functions; for example, I admitted a patient a few months since, who, while assisting to throw up hay upon a rick, received a severe injury by the fall of a fork from a considerable height on the back part of the head; one of the prongs entered the brain for a distance of between three or four inches, yet few marked symptoms developed themselves for some days, the patient's intellect remaining uninjured, and little inconvenience being experienced beyond a trifling want of equality in power over his arms. Before a week he became comatous, and died, although he was from the receipt of injury placed under the most watchful medical treatment. I have, on the other hand, occasionally seen the manifestations of the mind completely interrupted by the pressure of a large piece of depressed bone, and afterwards become restored, as the brain adapted itself to the alteration in shape which its case had undergone, without any mechanical effort being made for its relief. In deciding on the course to be pursued, we should, I conceive, be a good deal influenced by the nature of the fracture itself, as relates to those particulars to which I have already alluded.

Amongst the list of cases is one who swallowed a pin: she came to me from an adjoining county, complaining of very dis-

troubling symptoms, and I was therefore obliged to admit her for a few days. Females to whom this accident may have occurred constantly come to me for the purpose of having the pin removed. If it so happens that it may have passed down the œsophagus, it is almost impossible to convince the patient that it does not remain in the throat. She points to the situation of either corner of the os hyoides as the seat of all her troubles; there she feels the soreness, increased by every attempt to swallow, and there she obstinately insists she can distinctly feel the pin when she passes her finger down the throat. It may be readily supposed that her efforts soon induce a degree of inflammation, which renders the illusion more confirmed, as conjunctival vascularity induces a sensation of sand in the eye, or inflammation of the fauces a feeling of a foreign body there. On passing down the finger we may ourselves for a moment remain in doubt. The muscles of the pharynx being thrown into a state of spasmodic action, force the cornu of the os hyoides forcibly against the mucous membrane, and the sensation communicated to the finger resembles strongly what might be expected from the presence of a large pin lying across under this membrane. That this mistake, into which even a practitioner may fall, might lead to serious consequences, is proved by a case which came under my care not long since. A young girl having allowed a pin to slip down her throat, lost no time in proceeding to a neighbouring surgeon. She felt quite satisfied that she could place his finger where it lay at the butt of the tongue, as is commonly described. He examined the throat, and felt so convinced of its presence, that he made a deep incision at the side of the os hyoides for its removal; I need scarcely add, without effect. He was favoured by fortune, and escaped injuring any of the large vessels, but considerable inflammation supervened, and the girl was obliged to seek admission at the Infirmary, where she slowly recovered. Much better had he committed the harmless deception, sometimes prac-

tised by my father, of slipping into the basin a pin answering to the description of the one swallowed by the patient.

Diseases of the bones and joints are of frequent occurrence, particularly necrosis, which prevails to a great extent, and often in a very acute form. This disease sometimes sets in very suddenly, and without any obvious cause. A patient has told me, that while walking along he has been struck with pain in his leg, which prevented him from proceeding farther, and rapidly increased to intense agony on his coming to the Infirmary in a few days. I have found the forepart of the leg occupied by an abscess along its entire extent, and the periosteum detached for the same distance. It seems to me that in these cases suppuration takes place in the first instance under this membrane, which readily accounts for the suffering of the patient. In this acute form of the disease the new bone is generally formed with incredible rapidity often within a fortnight after the opening of the abscess, and before any line of separation for the detachment of the sequestrum has been established. A fact which distinctly proves that it is by the vessels of the periosteum and of the neighbouring soft parts that the process of reparation is performed. In one or two cases under my observation, the constitution proved unequal to the reproduction of the bone. Under such circumstances the sequestrum separates, the limb remains unsupported unless by artificial means, hectic fever, attended with extreme debility, sets in, and the only alternative is amputation or death. It is usually difficult to prevail on the patient to permit the removal of the limb before he is reduced to the lowest state of debility, compatible with the preservation of life; we must not, however, allow ourselves to be discouraged from the operation in consequence, for it is surprising how quickly the strength becomes retrieved after the removal of the local disease. During the last year I performed amputation of the thigh on four individuals, who were reduced so low by hectic fever, as to appear unlikely to survive for forty-eight hours. Two laboured under necrosis, and two under disease of the

knee joint. Three of them recovered rapidly, the fourth died as I had anticipated, for I could not by any means prevail upon him to allow the operation, while it afforded a reasonable prospect of a favourable issue ; when too late he became so importunate for its performance that I yielded to his entreaties, but he was too much debilitated, and sunk within a few days without an effort at reaction. Even in this case I am of opinion that life was for a short time prolonged by the removal of the disease ; I think I have seen a greater number of cases of necrosis amongst foundlings, than through the whole population besides. It would seem that these unfortunate beings are doomed to expiate the crimes of their parents by a life of unparalleled hardship, privation, and misery. They are frequently worked like beasts of burden on insufficient food, and with but half clothing. When affected with disease it often happens that their taskmasters will not bring them to the infirmary till their lives or limbs are placed in the most imminent jeopardy ; they know not sympathy for their sufferings, and in two many instances receive only evil at the hands of their fellow-creatures. Life is to them a dreary waste, without interest, without hope, and their minds too often become warped and perverted, as well as their bodies enfeebled and diseased.

I had but two cases of strangulated hernia in the infirmary within the year, one yielded to the taxis, the other required operation, and presented features of considerable interest. While walking to chapel, the patient was suddenly seized with violent pain in the groin, which soon extended to the whole abdomen, and was succeeded by obstinate vomiting and constipation. He was removed the same day to the infirmary. A small firm tumour, exceedingly tender to the touch, occupied the inguinal canal : no testis was to be found in the scrotum at this side, nor could the patient say whether it ever had descended. Failing in any attempts to reduce the tumour, and the symptoms continuing unabated, I had recourse to the operation. I found the testis in the inguinal canal, with a portion of small



intestine, closely constricted within the tunica vaginalis, which was much distended. The hernia was readily reduced, but it was not found feasible to introduce the testis into the scrotum. The distended tunica vaginalis hanging loosely in the wound, and appearing calculated to interrupt adhesion, I removed a considerable portion of it, and passed the testis behind the internal ring: the patient speedily recovered. Having detailed the case at length, and subjoined some observations on the treatment of hernia, and a more effectual application of the taxis in one of the numbers of Dr. Ryan's Medical and Surgical Journal, I need not repeat them here.

During the summer I was called to see a lady aged about fifty, who had been effected with hernia for several years, which within a few days had become strangulated. The tumour was considerable, and underwent but partial reduction from the taxis. The symptoms being urgent, and considerable time having already elapsed, I did not long delay the operation. The sac contained a small knuckle of intestine, and a large pyriform mass of omentum, which was agglutinated together by adhesions of long standing, and connected with that in the abdomen by a small peduncle; to reduce it was impracticable, even if I was disposed to make such an attempt, I accordingly removed it. No vessel required ligature, nor was there any hæmorrhage of the least consequence; my patient did well, and was in a very short time out of bed. The portion of omentum removed, and which I have preserved, weighed a pound and half.

To only two of the cases of retention of urine do I think it necessary to allude particularly, one was a female infant a few months old. The retention which was complete, proceeded from pressure caused by the accumulation of an enormous quantity of pus, at least a pint, in the vagina, which was imperforate, and had undergone considerable distention, the tumour reaching above the umbilicus. The presence of the fluid within facilitated the operation which afforded complete relief, but

the mother removed the child before the wound had entirely healed, and neglecting it at home, adhesion took place, the former symptoms returned, and I had again to divide the part. After this the child remained under my observation, and was in a short time discharged cured. The history of the other case has been more eventful. The patient was for the first time attacked with retention of urine about nine years ago, he sent for an apothecary who was in the habit of practising surgery, and who since procured a diploma as a surgeon, the same person who made the incision in the neck in search of the pin before alluded to. Without ceremony he forced a turkey's quill as far as he could reach down the urethra. This feat was practised, I imagine, in consequence of my father (who was in the golden age of surgery often thrown upon his own resources) having relieved a young female from retention by means of a goose quill in the town where this gentleman resided. The consequence of the reckless attempt, was profuse hæmorrhage both into the bladder and externally, with a distressing aggravation of all the previous symptoms. The patient sent for a surgeon, who was obliged to puncture the bladder, which he performed over the pubis, and removed a large quantity of coagulated blood; after some time a second attack set in, and he was by another surgeon punctured through the rectum. In a few months more he became bad again, and was admitted into the infirmary. The bladder was much distended, his perinæum like a rabbit warren, from numerous false passages, and the prostate considerably enlarged; from the latter circumstance the disease probably first originated; I made ineffectual trial of every other means I thought calculated to relieve him, but was obliged to have recourse to the trocar, and had to puncture twice subsequently above the pubis. His illness having again returned, I made trial of such an instrument as I thought could not readily slip into any of the false passages, the extent and position of which I was enabled to ascertain with tolerable accuracy; they ran in different directions between the bladder

and rectum, and one extended for some distance beyond the prostate. I carefully introduced a silver catheter of No. 11 size, which is nearly quarter of an inch in diameter, kept it closely directed along the upper surface of the urethra, and passed it on till it hitched against the opening of one of the false passages immediately at the bulb ; I then passed my finger into the rectum, brought it firmly against the catheter, the handle of which I quickly depressed, using the instrument as a lever, my finger as a fulcrum : the point passed up behind the arch of the pubis, and entered the bladder. This manœuvre I had before tried in vain with instruments of the ordinary size. The poor man has had several returns of his complaint each year, and I have always succeeded in relieving him in this manner, latterly without difficulty, as I suppose in consequence of the false passages having become contracted, and the urethra more open by the repeated introduction of the instrument. I have by the use of the instrument, in several instances, succeeded in affording relief which other hands had failed to effect, and I have found it particularly useful in cases of retention from enlargement of the prostate gland. Within the last few months, I was called to a neighbouring county to visit a gentleman advanced in life, who had been labouring under retention for four or five days, and on whom three well qualified practitioners had made several efforts on different days to introduce the catheter, and consequently abandoned the attempt as hopeless, and made up their minds to puncture. By the use of the large instrument, in the manner already described, I affected the desired object without either delay or difficulty. The prostate was much enlarged and indurated ; a large sized gum elastic catheter was kept in for some time, but the bladder has not yet acquired the power of emptying itself, and thus the patient is obliged frequently to introduce the instrument himself. I find that I can use a metallic instrument with more confidence than the gum elastic, and I believe it to be safer than the latter with its stylet. I have, however, sometimes observed that the flex-



ible instrument might be introduced when the silver one could not; it has occasionally happened that by passing on the gum elastic instrument with a strong stylet, till it meets with the obstruction, then firmly fixing the stylet with the left hand, and urging the tube forward with the right, the stylet being kept unmoved, it will enter the bladder, though this could not be effected in any other way. I have found this plan more useful than the partial withdrawal of the stillette for the purpose of shortening the curve of the instrument, or raising it over an obstacle in the passage. The large sized instrument is peculiarly well suited for cases of diseased prostate, being much less liable than a smaller one to be forced through the urethra, while traversing the short turn made by the neck of the bladder, when particularly doubled on itself by the ascent of this viscus from the pelvis, while the neck remains firmly bound down and compressed by the enlarged gland beneath. I seldom meet with stricture as a cause of retention of urine; it is a disease of very rare occurrence amongst the peasantry, who also enjoy an almost complete exemption from calculous diseases. I have seen but two cases of stone within the last seven years amongst the labouring classes.

It appears that cancerous affections are rather prevalent. As the following seems to have been a rare specimen of the disease, it may be considered deserving of notice.

A female aged 45, had from infancy a small tumour about the size of a pea over the left malar bone, it was unproductive of any inconvenience, she took it off by means of ligature; it reappeared, and she a second time removed it in a similar manner fifteen years since; it did not again return, but left a small mark, to which she paid little attention. About a year previous to admission, this part began to swell immediately after she had discontinued nursing. In six weeks a tumour was formed as large as an orange, tender to the touch and fluctuating; she punctured it with a large needle, which caused an abundant discharge of blood, but of no other fluid. Shortly after ulcera-



tion set in with considerable activity, attended with frequent hemorrhage and paroxysms of severe pain ; another tumour soon after formed under the left ear, of an irregular shape, hard, and the seat of severe lancinating pains. Becoming alarmed, the patient applied to a countryman who professed to cure cancer ; he put a plaster on the ulcer of the face, to remain on for four months. This application induced the most violent pain, which she endured with fortitude for the prescribed period ; during this time several small tumours formed in different situations, their appearance being generally preceded by a degree of sickness, the part about to be affected becoming tender and inflamed. On removing the plaster, she found that all the soft parts beneath it had been destroyed, and the cheek bone laid completely bare. From week to week the tumours became more numerous, and her health progressively gave way. At the period of admission she presented a most extraordinary appearance. I never beheld more complete emaciation. The left malar bone, and the anterior and outer third of the orbit, lay completely denuded, and presented the appearance of bones which had been exposed for half a century in a churchyard ; the soft parts had cicatrized around, and lay in firm contact with the dead bone. The globe of the eye had fallen in, and little trace of it remained. The situation of almost every gland was occupied by a carcinomatous tumour. The left parotid was much enlarged, reached forward on the cheek, as high as the zygoma, and half way down the neck ; it was of almost stony hardness, very irregular on the surface, and prevented the mouth from being opened wider than half an inch. The situation of the *mammæ* was occupied by similar productions resembling the healthy gland in size. Several hundred tumours of various sizes, from that of an orange to a grain of snipe shot, were studded over the trunk and extremities ; those on the trunk being larger than on the limbs, and those on the lower extremities larger than on the upper : they were more numerous and closely situated near to them at a distance from the centre of

the circulation, and appeared in great numbers along the course of the large absorbent vessels. The liver felt enlarged and irregular as if also affected, and several hard tumours were to be felt in different situations through the abdomen. In the larger sized alone did she suffer pain, which was of a severe lancinating character, and particularly distressing during change of weather. She laboured under a most distressing sense of weight at the precordia, her respiration was in some degree embarrassed, she had frequent and profuse perspirations, but the bowels acted naturally, and the catamenia had continued to appear from time to time at irregular periods. In a few days after admission she was attacked with erysipelas, and left the house before I could have any casts of the disease executed.

I have noted two cases under the head of hæmorrhagic tumour. Both presented at first the appearance of cancerous warts; one was situated in the lower lip of a young female, the other connected with the external jugular vein of a man aged about forty years; their structure was highly vascular, and the tops covered with a kind of horny crust, on the removal of which blood commenced to drop quickly, and usually continued to flow for a considerable time. From that over the jugular vein it occasionally burst forth in a small jet, and continued sufficiently long to induce considerable debility. Styptic or astringent applications proved ineffectual, the knife was alone found sufficient for their cure.

Cutaneous diseases are very general, particularly those of a squamous character, which prove extremely intractable. I have found tar both taken internally as pill, and applied externally as ointment, more effectual for their relief than any other remedy; it allays the irritation of the surface, improves the tone of the stomach, increases the appetite, and exercises a manifestly beneficial influence on the general health. I believe it to be endowed with valuable qualities, as a tonic, which are not duly appreciated. In a few such cases I have tried creosote with advantage. I was rather disappointed in its effects on

ulcers, to which I had been led to expect it as likely to prove useful, I have not, however, as yet, had sufficient experience of the remedy to enable me to form a correct opinion of its efficacy.

I have been consulted by several persons to whom the bichloride of mercury had been administered for the cure of cutaneous diseases, and had affected the bones in several situations. Some deny that such a consequence ever results from the unmixed effects of mercury uncomplicated with venereal. I recollect having read a paper to that effect, published by Dr. Musgrave in the twenty-eighth vol. of the *Edinburgh Medical and Surgical Journal*. I have, however, seen so many cases of nodes and exostoses having formed on different bones of persons at all ages, and in various conditions of life, subsequent to the long continued use of corrosive sublimate for affections of the skin, that I can no longer entertain any doubt on the subject.

Our operations have not been either as numerous or important during the past as former years: if I except the four cases of amputation of the thigh, already mentioned, one of amputation of the leg, one of amputation of the arm, the application of ligature to the tibial and the radial arteries, the use of the trephine in a couple of cases, and three or four operations for cataract, they were of but secondary importance, as the removal of tumours and cancerous diseases, operations for hare-lip, amputation of the fingers or toes, and one for the restoration of the nostrils, which had become closed in consequence of small-pox. For the success which has generally attended my amputations, I feel in some measure indebted to the use of sutures, a practice which I have commonly adopted since the commencement of my practice, and which, if generally adopted, would, I feel certain, be found highly beneficial.

Of the twenty-two deaths which took place during the year, three were caused by compound fracture of the skull, accompanied by injury of the brain, three by spreading gangrene, one

case of having followed a severe and extensive laceration of the leg, which was emphysematous at the time of admission, and the patient refused to allow amputation; the second was caused by the brutal mal-practice of a "bone setter," who had broken up an ill-united fracture of the forearm, laid it open, and introduced a tent charged with some stimulating application. In this case the gangrene extended rapidly, and the chance of amputation was given under very hopeless circumstances, the boy being in a state of low delirium at the period of admission. The third was a brewer's man who received a severe compound fracture of the leg, was attacked with low fever and carried off. Four died of acute necrosis, two of whom gave way under the irritative fever accompanying the first stage of the disease; a third was worn out by profuse suppuration, attendant on the detachment of a considerable portion of the humerus, which left the limb completely unsupported; and the fourth already mentioned, died after amputation for the removal of a necrosed tibia, and a knee joint in a state of suppuration. These four young persons were foundlings.

Three persons were taken off with unexpected rapidity. An old man who was admitted for an ulcer of the leg, by erysipelas and inflammation of the absorbents; a young girl admitted for a chronic abscess of the back of the typhoid pneumonia, and a case of compound fracture of the humerus by a low typhus, of about three days' duration. Another patient died of peritonitis and inflammation of the liver, caused by the wound of a cane sword. A case of hypertrophy of the heart dropped suddenly dead while walking across the ward. Two children survived the effects of extensive burns but a few hours.

A female died with all the symptoms of intussusception, two others from chronic dysentery, one from cancer of the uterus, and a man, apparently in the prime of life, died within a week of purpura, attended with profuse hæmorrhage from the mucous surfaces.

The following cases were removed at the desire either of



themselves or friends, in a condition not likely to recover. Three labouring under typhoid fever, the first occurring to an individual who had remained for some days unrelieved from retention of urine; the second had received a severe injury of his finger by the falling of a heavy weight upon it, and a third, who was at the period of admission in an extremely low state, from anthrax of the back. Another, a case of typhoid pneumonia, which was admitted for disease of the spine, lodged in the same ward with the case of chronic abscess already mentioned as having died of a similar disease; both took ill upon the same day. Another was a case of gangrene from compound fracture of the leg, in which permission to amputate was denied. A case of acute necrosis, two of dropsy, one of which depended on disease of the heart, one of serous apoplexy, following the rapid absorption of fluid in ascites, one of stricture of the rectum, which was so close as to prevent the passage of a small sized catheter, and one of cancer of the uterus.

I cannot expect that this report shall be considered generally interesting, nor does it afford as much statistical information as it should. I have been obliged to put it hastily together in a few days, when my mind was otherwise much occupied. Many observations may appear trite, or perhaps display an imperfect acquaintance with the literature of my profession. I have, however, on the whole considered it better to let it go before the profession with all its imperfections, than withhold a candid statement of the condition of the institution, at a time when it is desirable that the working of such establishments should be as far as possible understood.

ART. X.—*On the Use of Tartar Emetic combined with Opium in certain Varieties of Delirium occurring at an advanced Stage of Continued Fever.* By ROBERT J. GRAVES, M.D., King's Professor of the Institutes of Medicine, Honorary Member of the Royal Medical Society of Berlin, of the Medical Association of Hamburg, &c. &c.

THE subject of the following observations was treated at some length in two lectures I published in Renshaw's London Medical and Surgical Journal in May, 1835, and I have been induced to notice it again, partly because that Journal is known to but few Irish practitioners, but chiefly because subsequent experience has enabled me to collect many additional facts, illustrative of the practice then recommended.

It is well known that delirium tremens requires very different modes of treatment, varying according to the constitution, strength, age, and habits of the patient. In the young and robust it often assumes a form exceedingly resembling that of delirium arising from sudden congestion or inflammation of the brain or its membranes, and then demands strictly antiphlogistic measures, such as venesection, leeching, cold to the head, and very active cathartics. These remedies will often speedily arrest the progress of the disease. On the other hand, we very frequently meet with *delirium tremens* calling for a totally opposite plan, for when it occurs in the old, debilitated and confirmed drunkard, who has been repeatedly subject to its attacks, we are often obliged to exhibit opium from the very commencement, and that in large doses combined with porter, punch, or some other cordial; these two form the extremes, between which there are many intermediate varieties, each requiring a special modification of practice. Thus, some must be treated rather actively, on the antiphlogistic plan at first, and immediately afterwards opiates may be used with advantage; while in others, opiates cannot be given alone at any period

of the disease, so prominently marked are the symptoms of cerebral congestion; and yet these cases cannot be cured without narcotics. How then are they to be exhibited? Do we possess any medicine capable of modifying and diminishing their injurious effects when given where cerebral congestion exists? Undoubtedly we do; tartar emetic will often accomplish this desirable object, and in delirium tremens the value of its combination with opium is recognized by every practitioner of experience. Tartar emetic, boldly exhibited, often is itself our sheet anchor in delirium tremens, especially when the evidence of active determination to the head is undoubted. Then tartar emetic alone, in repeated doses, often powerfully contributes to produce tranquillity and sleep; but there are other, more mixed cases, where we cannot cure without adding opium, sometimes in larger, sometimes in smaller quantities, to the solution of tartar emetic; and so it is with the delirium and sleeplessness, so often met with in continued fever. Every one is acquainted with the indications denoting the propriety of adopting the antiphlogistic practice when these symptoms make their appearance in the commencement of fever. Then the lancet, leeches, purgatives, cold applications to the head, and finally, repeated doses of tartar emetic tend powerfully to reduce vascular action, and diminish the violence of symptoms depending on cerebral congestion and excitement. Here the lancet and tartar emetics are our best opiates, our best restoratives of tranquillity and sleep. As the fever progresses, and when we have arrived at a more advanced stage of the disease, when petechiæ or maculæ make their appearance on the skin, and symptoms of general debility announcing the typhoid type begin to predominate, then we must proceed with more caution, even though our patient is totally deprived of sleep and is violently delirious. The lancet cannot now be resorted to; leeches, indeed, may be applied, but their effects must be carefully watched, as the patient will not bear copious depletion of any sort; tartar emetic may, nevertheless, still be given

boldly, and still will be found to answer our expectations. But if we have to contend with want of sleep and delirium at a still more advanced period of fever, we now often recognise that very combination of symptoms, the union of general debility, and cerebral congestion, which in certain varieties of delirium tremens we have seen so successfully treated with tartar emetic and opium ; who will refuse to acknowledge the similarity between these cases of fever delirium and many varieties of delirium tremens ? are there not in both, the same tremor and subsultus of the extremities ; the same trembling of the tongue when the patient endeavours to put it out ; the same starting and sleeplessness ; the same rambling, delirium or incoherence, combined nevertheless with the power of answering rationally when spoken to ; the same character of the mental wandering, for in both they are extremely apt to rave as if employed in their ordinary occupations, and as if surrounded with their usual associates ; in short, can any greater resemblance exist between two diseases arising from the operation of remote causes so different ? We need not, therefore, be surprised, at finding the same treatment applicable to both.

In order to put the reader in full possession of my views, and of my experience on this subject, I shall at the risk of being tedious, quote two passages from the Lectures above referred to, after which I shall relate some new and striking cases that have occurred since their publication.

“In the two preceding cases, Gentlemen, I was guided by ordinary principles, recognized by all physicians, and according to which the exhibition of tartar emetic is recommended in fever whenever there is undoubted evidence of determination of blood to the head, producing headach, loss of sleep, and delirium. In the cases which follow, tartar emetic was exhibited at a period of fever, and under circumstances that were, with respect to the exhibition of this remedy, not less novel than important. The principles which led me to this practice have been long established, but nevertheless, the practice is



entirely new, and (I say it with pride, for it has already been the means of saving many valuable lives) it is entirely my own.

“Shortly after the commencement of our present session, Mr. Cookson, a pupil at this hospital, and remarkable for his diligent attention to clinical pursuits, caught fever while attending our wards, in which many cases of the present epidemic were then under treatment. His fever was of an insidious nature, not characterised by any prominent symptom, not exhibiting any local disease to combat, or any tendency to crisis. For the first seven or eight days, with the exception of headach, which was much relieved by leeching, he seemed to be going on very well; his skin was not remarkably hot; he had no great thirst, nausea, or abdominal tenderness; his pulse was only 85; and he had sweating, which was followed by some relief. About the eighth or ninth day the pulse rose, and he began to exhibit symptoms of an hysteric character. Now, in every case of fever, where symptoms resembling those of hysteria come on, you should be apprehensive of danger. I do not recollect having ever met with a single case of this kind which did not terminate in nervous symptoms of the most formidable nature. I prescribed at the time the usual anti-hysteric medicines, but without any hope of doing good, knowing that these symptoms were only precursory to something worse. I also, as a precautionary measure, had leeches applied to his head. The fever went on, the headach became more intense, he grew nervous, and sleepless, and fell into a state of great debility. On the fourteenth day of fever his tongue was black and parched, his belly tympanitic; he was passing every thing under him unconsciously; he had been raving for the last four days, constantly attempting to get out of bed, and had not slept a single hour for five days and nights. Dr. Stokes, with his usual kindness, had given me the benefit of his advice and assistance during Mr. Cookson’s illness, and we had tried every remedy which experience could suggest. Blisters had been applied to the nape of the

neck, the head kept cool by refrigerant lotions, the state of the belly attended to, and, as we perceived that the absence of sleep was a most prominent and distressing symptom, we had been induced to venture on the cautious use of opium. It was first given in the form of hydrarg. c, cretâ with Dover's powder, with a view of relieving the abdominal symptoms as well as procuring sleep. This failing in producing the desired effect, we gave opium in the form of enema, knowing its great power in the delirium which follows wounds and other injuries. This was equally unsuccessful with the former. He still was perfectly sleepless. We came again in the evening, and as a last resource, prescribed a full dose of black drop, and left him with the conviction, that if this failed he had no chance of life. On visiting him next morning at an early hour, we were highly mortified to find that our prescription had been completely unsuccessful; he had been more restless and delirious than ever. Here was the state in which we found him on entering his chamber at eight o'clock in the morning on the 15th day of his fever. He had universal tremors and subsultus tendinum, his eye was suffused and restless, he had been lying for some days entirely on his back, his tongue was dry and black, his belly tympanitic, his pulse 140, quick and thready, his delirium was chiefly exhibited in short broken sentences and in a subdued tone of voice, and it was now six days and nights since he had slept. Here arose a question of great practical importance. How was the nervous agitation to be calmed and sleep produced? Blisters to the nape of the neck, cold applications, and purgatives had failed; opium in various forms had been tried without the slightest benefit; if sleep were not speedily obtained he was lost. At this emergency a mode of giving opium occurred to me which I had never thought of before in such cases. Recollect what his symptoms were at this period: quick failing pulse, black, dry, tremulous tongue, some tympanitis, excessive prostration of strength, subsultus tendinum, extreme nervous agitation, constant muttering, low delirium, and total sleeplessness. I said

to Dr. Stokes that I wished to try what effects might result from a combination of tartar emetic and opium ; I mentioned that I had given it in cases of delirium tremens with remarkable success, and thought it worthy of trial under the circumstances then present. Dr. Stokes stated in reply that he knew nothing with respect to such a combination, as adapted to the case in question, that he had no experience to guide him, but that he would yield to my suggestion. We therefore prescribed a combination of tartar emetic and laudanum in the following form, which is that in which I generally employ these remedies in the treatment of delirium tremens.

“ R. Antimonii tartarizati grana quatuor, Tincturæ opii. drachmam, Misturæ camphoræ, ʒviij.

“ Of this mixture, a table spoonful to be taken every second hour. The success of this was very striking. It is true that it vomited him ; after taking the second dose he threw up a large quantity of bile, but this did no harm. After the third or fourth dose he fell asleep, and awoke calm and refreshed ; he began to improve rapidly, and soon recovered.

“ The next case to which I shall direct your attention is that of Mr. Stephenson, a pupil of Mr. Parr of this hospital. This young gentleman, as many of you will recollect, was attacked with fever about the middle of January. On Thursday evening he complained of languor and *malaise*, and on the following day felt himself feverish, but without any prominent or decided symptom. At night he took a dose of calomel and antimonial powder, which had no sensible effect, and the following day complained of shivering, violent headach, pain in the back, thirst, prostration of strength, and sleeplessness. He was ordered to take a combination of tartar emetic and nitrate of potash in camphor mixture, which produced a few loose stools and some diaphoresis ; but in consequence of its effect on the stomach, and his complaining much of thirst and epigastric tenderness, the tartar emetic was omitted and effervescing draughts prescribed. Two days afterwards, the epigastric tenderness still continuing,

twelve leeches were applied over the pit of the stomach, followed by a blister, which gave relief, and the bowels were kept open by enemata. He commenced a second time the use of the tartar emetic and nitrate of potash, with the addition of five drops of tincture of opium to each dose, but was obliged to give it up again in consequence of the increase in his gastric symptoms. He now became exceedingly restless, and his delirium began to assume a very intense character. Leeches were applied behind the ears, his head shaved, and his temples blistered; he had also a large blister over the abdomen, which gave him considerable relief, but the cerebral and nervous symptoms became much worse. The delirium went on increasing, accompanied by subsultus tendinum, and picking the bed-clothes; he was perfectly sleepless, raved incessantly, and had to be kept down in bed by force. On the 17th day of his fever he was in the following condition,—tongue brown and rather dry, no remarkable thirst or abdominal tenderness, eyes red and ferrety, no sleep for five nights, constant muttering and delirium, (which had now assumed the character of delirium tremens,) subsultus tendinum and jactitation extreme, urine and fæces passed under him unconsciously. I directed the combination of tartar emetic and laudanum to be immediately given, carefully watching its effects. He had only taken two doses when a degree of calmness set in, bringing with it relief to all his symptoms, and before a third dose could be administered, he fell into a profound sleep, from which he awoke rational and refreshed. The mixture was continued every four hours with increasing benefit; he slept long and soundly, and began to improve in every respect. On the second day after he had begun to use the tartar emetic, he took a little porter, which was changed the next day for claret and chicken broth. In about a week he was able to sit up in bed, and seven days afterwards was able to leave the hospital, and go to the country for change of air.

“The last case to which I shall direct your attention is that of Mr. Knott, also a pupil of this hospital, a gentleman remark-



able for his unremitting attention to clinical pursuits, and from whom I derived much valuable assistance in conducting various post-mortem examinations. This gentleman was attacked with a fever about the latter part of January, which went on for some time without any particular symptom, except considerable restlessness and nervous excitement. He then became perfectly sleepless, complained of violent headach and thirst, raved, and became exceedingly irritable. Opium in various forms and repeated doses, either alone or combined with musk and camphor, totally failed in producing sleep, and his condition became daily worse. On the 13th day he was in a very dangerous condition; his nervous agitation had risen to an alarming height, and for many days and nights he had never closed an eye. At this period it appeared obvious that if something were not done to calm nervous excitement and restore sleep, he had but little chance of life. Under these circumstances I proposed to my friend, Dr. McAdam, who attended with me, to give the tartar emetic and opium. After he had taken about three spoonfuls, he had a copious bilious evacuation, and immediately afterwards fell into a sound sleep, during which he perspired profusely, and awoke in about twelve hours with every bad symptom gone. The nervous irritability was completely allayed; his thirst and headach relieved; his tongue moist and cleaning; and his reason quite restored. From that period every thing went on favourably, and he rapidly regained his health and strength.

“I am thus particular in dwelling on the symptoms manifestly denoting a combination of primary general nervous excitement, with a secondary cerebral congestion, for on the successive development of these states, the treatment during the latter stages hinged. I wish you clearly to understand, that after the headach and cerebral excitement which accompanied the very commencement of the fever had been subdued, or had ceased, after a certain degree of sleep and calm had returned, and had continued for many days, then a new order of

things commenced—subsultus, watchfulness, muttering, raving, involuntary discharges, &c., all denoting great derangement of the nervous system; but still there was no proof that this derangement depended on cerebral congestion. After a few, or after many days, however, unequivocal symptoms of the latter set in; the face and eyes became suffused and flushed; the pupils manifested a tendency to become contracted, and occasionally convulsions took place. When the latter and dangerous period of the fever was accompanied by the former nervous group of symptoms *alone*, they yielded to wine, musk, porter, and opiates; but when the symptoms indicating cerebral congestion were superadded, then it was that the case assumed so great and striking a similarity, so far as the functions of the nervous system were concerned, to the well-known variety of delirium tremens accompanied by cerebral congestion, to that variety of delirium tremens, in fact, which can only be successfully treated by the judicious but bold exhibition of tartar emetic combined with laudanum. *It is the discovery of the utility of this practice in the advanced stages of spotted fevers, that I claim particularly as my own*, for there is not in the writing of any author on the subject the slightest traces of such a method of treatment to be found. As this method has manifestly saved many, many lives, under a combination of circumstances apparantly hopeless, I cannot avoid congratulating myself upon being the first to propose a practice which has not only diminished the rate of our hospital mortality\* in a remarkable manner, but has been the means of saving many of my friends and pupils; for without its adoption our class at the

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\* Seventy-three fever patients, namely, forty-one males and thirty-two females, were treated in the clinical wards of Sir P. Dun's Hospital during the months of February, March, and April. Of these more than fifty were cases of maculated or spotted fever, and yet we lost but two females and one male. The latter was in a hopeless condition when brought in, and one of the former was attacked by varioloid just after the crisis of long-continued spotted fever.

Meath Hospital would have been more than decimated, whereas, at present, we have to regret the loss of but one pupil.

“One word more, Gentlemen, as to the circumstances under which this plan was applicable. They were exactly the circumstances which formerly would have been believed to demand the fresh application of leeches to the head, of cold lotions, and of blisters, for it was formerly argued, and justly, we have in this advanced stage of fever not merely debility to combat, not merely general nervous excitement to overcome, but we have also to contend with cerebral congestion. The latter is the most formidable of the whole; let us meet it boldly; let us leech, let us purge, &c., &c. I need not repeat to you, Gentlemen, the detail of cases illustrating the ill effects of this practice. Suffice it to remark, that you might as well attempt to cure *delirium tremens* with mere leeching, purging and blistering. Observe I am now speaking of the advanced stages of fever, for where cerebral congestion takes place in the beginning or the middle of fever, then is there no room for opium, then will the practitioner have recourse to the well-known remedies for active cerebral congestion, viz. purging, leeches, cold lotions, ice to the head, &c., &c.”

Since the delivery of the clinical lectures in which the preceding cases are detailed, several others have occurred both in hospital and private practice, to some of which I now beg leave to direct attention, observing that I have in every instance been particular in mentioning the names of other professional gentlemen who witnessed the progress of each case; a precaution tending to prevent exaggeration either in detailing symptoms or describing the effects of remedies.

The case of Mr. William Murphy, an extremely diligent and intelligent pupil at the Meath Hospital is well worthy of notice. The father of this gentleman, a practitioner of well-known reputation at Fermoy, where he has been Physician to the Fever Hospital for many years, arrived in Dublin the very day his son's state appeared to be hopeless, soon after

the consultation, when Doctor Stokes and I agreed to use the tartar emetic and opium ; Doctor Murphy admitted afterwards that he never felt so much surprised as he was at this treatment, but having entrusted the care of his son to us, he very properly expressed no opinion on the subject, a mode of proceeding he has never since ceased to congratulate himself on, for had he opposed us, the case was apparently so desperate, that it may be doubted whether we would have ventured to put the plan into execution.

Mr. Murphy, aged 20, having been engaged in the diligent study of the fever cases in the Meath Hospital, was attacked with violent symptoms of fever on the 6th of January last. He took a dose of calomel and James' powders, and went to bed ; early next morning he was worse, and although he took a purgative draught which operated freely on the bowels, he complained much of headach, and was very feverish ; a copious sweat broke out, but was unattended with relief, notwithstanding that it continued with more or less interruption for several days. His thirst was excessive, and he was very restless, depressed, weak, and nervous ; the antimonial powder and calomel were persevered in during the second day, and on the third he took more purgative mixture, and twelve leeches were applied to the temples, but they gave little or no relief to the pain in the head. In short, he grew hourly worse, and was found to be extremely prostrated. On the 4th, his tongue was foul and dry, his stomach irritable, often rejecting his medicine, and producing a vomiting of bilious matter, the pulse quick, and his air unpromising. I saw him on the 5th day, when every thing was still worse, and the pain of head much complained of. I directed a continuation of the James's powder, and effervescing draughts. On the 6th day he was still worse, and was reported to have raved a good deal during the night ; his bowels were loose, and now for the first time the perspiration entirely ceased, and his skin became hot and dry. I gave him small doses of



Dover's powder and chalk. On the 7th day, his countenance expressed great anxiety, and in addition to an aggravation of all the other symptoms, his skin became covered with a measles like eruption of maculæ, a circumstance which induced me to give the liquor of the chloride of soda, in doses of twelve drops, every fourth hour, in an ounce of camphor mixture. He got mild diet, as arrow root and chicken broth, with a little stale bread sopped in tea, night and morning. On the 8th day, no improvement; much raving during the night. On the 9th, symptoms as before, except that the occurrence of some abdominal tympanites and slight epigastric tenderness induced me to apply six leeches to the pit of the stomach. The bleeding from the leech bites was moderate, but seemed nevertheless to exhaust him. It seemed to check the tympanitic tendency. On the 9th day, was still worse, much stupor, incipient subsultus; towards evening a very hurried and laboured breathing supervened, and he lay entirely on his back, helpless and weak, respiring about 45 times in a minute. As he had not the slightest affection of the lungs or bronchial tubes, this hurried breathing excited the greatest alarm in my mind, and induced me to apply six leeches behind the ear, with a view of relieving the now increasing stupor, and the evident cerebral congestion.

On the 10th day, I had the benefit of Doctor Stokes' advice. We found our patient in a state truly appalling. He lay panting on his back, restless and without sleep, every muscular fibre in his face and limbs was agitated with spasmodic twitches, giving rise to the greatest possible degree of subsultus, which distorted his face, caused him to bite his under lip every instant, rendered him quite unable to put out his tongue, although he endeavoured to do so. The subsultus prevented us from being able to feel the pulse, now weak and rapid, at the wrist. In the mean time, though he often moaned and raved, he muttered indistinctly; he evidently understood what was said to him, and as far as we could collect, he seemed to suffer much less from pain in his head. Still the temporal arteries were turgid, and

his eyes suffused. He had retention of urine, and since yesterday it was drawn off with the catheter. What was now to be done? Cold lotions to the shaved head had failed—a blister to the nape of the neck had proved useless—we could not venture to rely on more blistering of the scalp—some more powerful remedy must be instantly brought to bear, or our patient was lost. Alvine evacuations had been pushed to the fullest extent; leeches could not even be proposed, so great was the debility. Opium we dared not venture on, seeing that so recently the pain in the head had been urgent, and that the temporal arteries and the conjunctiva still seemed to indicate cerebral congestion; under these circumstances we resolved to try tartar-emetic, and we ordered the following mixture:—

℞ Tartar Emetici gr. ii. Moschi gr. xxx. Mucilaginis Syrupi Simplicis āā ℥i. aquæ fontis ℥x. ℥ Sumat ℥ss. omni horâ.

After he had taken about six doses of this medicine, he seemed rather better, and the symptoms of determination to the head appeared less marked; we therefore added fifteen minims of patent black drop to the remaining nine ounces of the mixture, and directed small quantities of porter and chicken broth to be given repeatedly during the night. On the 11th day, we found a change for the better truly surprising, the pulse had diminished remarkably in frequency, and had become softer and fuller; a warm sweat had broken out, he had raved but little, and had slept tranquilly. We ordered a continuance of the same nourishment and medicines, the latter at much longer intervals; the case need not be further detailed as Mr. Murphy rapidly recovered and enjoyed a speedy convalescence. Here then is a case which would assuredly have been lost but for the well-tried application of the new method of treatment. I say this emphatically, for Mr. Glyssan, Mr. Boyton, Mr. Clarke, and Doctor Murphy, all anxious and competent observers, assured us that from the moment he began the bottle, its good effects were apparent, and increased after each dose.

CASE II.—John Doyle, admitted into Meath Hospital, May 21st, 1835 ; three or four days ill, a strong young man ; the symptoms were attended with considerable re-action at the beginning, his face being flushed, eyes wild, and head aching ; he raved much too during the night from the 4th day, and had then a full bounding pulse at 105. Venesection was ordered, but he fainted when four ounces of blood had been drawn. Leeches were then applied to the epigastrium. On the sixth day of his illness, his thirst was great, no sleep, skin moist, belly soft, pulse 120, pain in head severe, copious eruption of maculæ. His head was now shaved, and six leeches applied behind the ear, and were repeated three times. He was ordered the liquor of the chloride of soda on the 7th day, as the vascular excitement had then diminished, and the maculæ constituted a prominent feature in his case. On the 8th day he was not worse, but his skin was still very hot. On the 9th day, eyes suffused, face flushed, much thirst, no sleep, bowels free, belly soft, some epigastric tenderness, tongue loaded, but moist, cold lotions to head. Repeat chloride of soda. 10th day, delirium violent during the night, strait-waistcoat necessary, eyes suffused, belly soft, skin very hot, pulse 120, respirations 40, considerable subsultus. Six leeches to be applied behind the ear three times successively.

℞ Tart. emetici gr. iv. aquæ fontis lb. i. ʒ Sumat ʒss. omni horâ.

11th. Slept very little, delirium less violent, one very large stool, heat of skin less, eruption copious.

℞ Misturæ camphoræ ʒviii. Tartar emetici gr. iv. Tincturæ opii ʒi. ʒ Sumat ʒss. 2â. q.q. horâ.

12th. Slept five hours, seems better, but still he passes his stools under him ; pulse 120, eyes suffused, skin hot, tongue cleaning, belly soft, bowels loose, maculæ numerous. The same prescription, except that the tincture of opium was increased to ʒiss. in the eight ounce mixture.

13th. The medicine was continued for several hours, when

he fell asleep, and slept so much and so tranquilly, that it was not thought necessary to repeat it. Pulse 110; subsultus not near so violent; does not rave; knows every one, and answers rationally; light nourishment.

14th and 15th. Improvement continues, but still there is much fever, and many maculæ. About the 21st day he was free from fever, but he got no medicine after the night of the 12th.

This case exemplifies the treatment adapted to the three different stages—1st, Bleeding, leeches, cold lotions; 2nd, Tartar emetic in large doses, combined with leeching; 3rd, Opium boldly administered in combination with tartar emetic.

CASE III.—The following, communicated by my friend Mr. Knott, whose own case I have already referred to, excited much interest among the practitioners of the neighbourhood:—

On the 20th of July last, I was called to see a comfortable farmer, residing near Boyle, in the county Roscommon, named J. K——. He was aged 30 years, and had been ill 21 days. His fever commenced with rigor, headach, and pains in the loins, the headach being particularly severe. In the commencement of the fever he had raved incessantly; slept but little; had frequent retching; his bowels were confined; for these symptoms, he was purged with black bottle to excess, and bled largely and frequently, but without any permanent alleviation. On the 21st day of his fever he presented the following appearance and symptoms:—his countenance was expressive of great anxiety and ferocity; his eyes were bloodshot and wild; teeth covered with sordes; tongue brown and furrowed with clefts; he raved violently and attempted to get out of the bed several times; great excitement and *subsultus*; his skin was very hot and dry; all the secretions much diminished; urine high coloured; no eruption; no epigastric tenderness; abdomen slightly swollen and tympanitic, but pressure seemed to give no pain; his bowels had not been open for three days. That night he was ordered 40 drops of the tincture of opium, at the same time that an *enema* was exhibited; the bowels were once opened;



he slept none during the night, and the excitement was, if any thing, greater than before. Under these circumstances it was thought advisable to administer the tartar emetic and opium in the manner I had seen it exhibited, whilst acting as clinical clerk under Doctor Graves, in the Meath Hospital. He got an ounce of a mixture, consisting of eight ounces camphor mixture, four grains tartar emetic, and a drachm of laudanum every second hour, and after he had taken the third dose he had a large watery evacuation; after he had taken the fourth dose he fell into a calm sleep, in which he continued for nearly twelve hours; he awoke much refreshed and covered with a profuse perspiration. He was able now to recognise his friends; the subsultus and general excitement was greatly, but not entirely, allayed; his pulse, which had been 120 small and wiry, had fallen to 98; he continued his medicine during the next night with the greatest benefit. From this period this man's recovery was rapid and unexpected, and at the end of three weeks he was able to attend to his business.

CASE IV.—(*Reported by a Pupil.*)—Ellen Dowden, æt. 18, admitted in the Meath Hospital on the 8th of June, states that she has been ill 12 days. Her illness commenced with the usual symptoms; headach; rigor; loss of rest and appetite: previously to her admission she had been purged freely without any relief. On the day of her admission she was flushed; skin dry and very hot; the whole body was covered with maculæ; she was heavy and stupid; answered questions incoherently; her eyes were slightly suffused; called out continually for drink; her tongue was dry, brown, and rough; seemed to have much pain on making pressure on the epigastrium; the belly was swelled and tympanitic; bowels confined; no cough or headach; pulse 108, wiry; applicentur hirudines octo epigastrio: head to be shaved and cold lotion to be applied.

℞ Hydrargyri c. creta, gr. x. Pulv. ipecac. comp. gr. ii. ʒ  
Fiat. pulv. quater in die sumend.

9th. Much worse to day; slept for about one hour yesterday

evening ; lies continually on her back ; seems to take no notice of what is going on about her ; raved occasionally during the night ; teeth and mouth covered with sordes ; tongue very dry, rough, and coated with brown ; pulse fallen to 80, very small, but less wiry than on yesterday ; her bowels were opened twice copiously ; belly soft and fallen ; epigastric tenderness much relieved, headach gone, maculæ less.

℞ Sol. chlorid : sodæ gtts. xv. Mist. camph. ℥i. Guttæ nigræ. gtt. i. ℥ Fiat. haust. quater in die sumend.

To have a pint of beer and arrow root.

10th. Raved the whole night ; subsultus general and violent ; pulse 120, sharp ; slightly dicrotous ; slept none ; face much more flushed than on yesterday ; eyes suffused, passes under her ; maculæ much diminished ; has no headach ; bowels rather free ; lies on her back with her feet drawn up ; has no chest symptoms ; respiration natural ; ordered ice in bladders to the head, with a mixture composed as follows :—

℞ Mist. camph. ℥viii. Tart. emetic. gr. i. ℥ Sumat. ℥ss. omni semi horâ.

11th. When seen yesterday evening she was very violent ; endeavoured to get out of bed ; screamed loudly, and complained of bad treatment ; she had slept none at this period, her bowels had been freed copiously, but she stills continues to pass under her ; she endeavours to throw the ice bags off her head, and requires some violence to hold her in bed ; subsultus extremely violent ; face much flushed ; eyes red ; she was ordered the following :—

℞ Mist. camph. ℥viii. Tart. emetic. gr. iv. Tinct. opium, ℥i. ℥ Sumat. ℥ss. secundis horis.

She had taken but two table spoonfuls when she began to sleep ; she has continued to doze to the hour of visit ; she is much improved in every respect ; she answers questions rationally ; her face is not so much flushed ; eyes less suffused ; has no headach ; pulse 120, not so sharp ; skin still very hot ; tongue moist

and cleaning. She was ordered not to take any of the mixture if she continues better. Enema emolliens statim. Improvement went on steadily until convalescence was established.

CASE V.—“My dear Doctor,—In compliance with your request, I send you an abstract of the case of Stephens. It was one of spotted fever occurring in a young man of temperate habits, setting in with langour followed by rigor. I saw him on the 4th day, when there was unpleasant heat of surface, with general tenderness all over the body, particularly remarkable over the epigastric region; the chest, arms, and hands, studded with florid maculæ; headach and pain of back distressing; light disagreeable; pulse 108; tongue moist. He had an oil draught, followed by small doses of hyd. c. cret. c. pulv. Dover. On the 6th day of his fever, being very restless and sleepless, eyes slightly suffused, and pulse 120, I gave him an eight ounce mixture, containing four grains of tartar emetic, and a drachm of tincture of opium; two table spoonfuls to be taken in the evening, and one every hour afterwards. On the next day the report was, that he had slept a good deal during the night, having fallen asleep after the third dose, three hours after which a fourth was administered. He is dozing; pulse 120; skin hot and dry; bowels four times moved; ordered to continue his mixture, watching its effects. On the 8th day, in consequence of severe purging having set in, (he had taken but two doses of the mixture since last report,) the epigastrium becoming very tender, and pulse 132, his medicine was omitted, and a cretaceous mixture ordered instead, a small quantity of port wine diluted, and a blister to the abdomen; the blister was not applied, yet the purging was checked. On the evening of the 9th day, as he complained much of want of rest, and there was no headach, I directed him to have two doses of the tartar emetic and opium mixture, within an interval of two hours. I was compelled at this period to give up attendance on this case in consequence of an accident; it was, however, taken up by my friend Dr. Grant, who kindly kept

notes, and with whom I had daily conferences. He reports our patient, on the 10th day, to have suffered an accession of fever, seemingly caused by abdominal irritation; he complained much of headach; the eyes were injected; skin hot and dry; tongue brown and crisp; pulse 144; respiration 49; throbbing of the temporal arteries; when undisturbed, raving and moaning, but answers rationally; abdomen full and tense, tenderness in region of colon, with some tenesmus; sleeplessness. He was given calomel, gr. iv. ext. hyoscyami, gr. iii. followed by an oil draught; a blister was applied to the abdomen; cold to the head, and warmth to the feet. The medicine acted well, producing a number of dark-coloured motions, with some relief of the symptoms; the sleeplessness, however, still continuing. On the 12th, raved considerably the previous night, with great restlessness; headach, with darting pain; pulse 120; still answers rationally, but raves when left to himself; abdomen soft: he was again put on the use of the tartar emetic and opium mixture, to have one table spoonful every hour for three doses, and then only every second hour. On the following day there was a considerable improvement; he had slept well, and perspired freely in the night; no raving; headach gone; pulse 96; heat of skin less; to continue his mixture. On the 14th day he was much better; he wished for food. On the 15th day he suffered a relapse, from his appetite having been imprudently indulged; he was given an oil draught, and directed to resume his mixture when the bowels acted. He continued from this time to improve; the interval between the doses of his mixture was gradually lengthened; and on the 17th day he was convalescent.

“In this case the good effects of this mixture were evidenced by perspiration and rest. This lad’s mother and sister were just convalescent from spotted fever; the former four weeks, the latter, a fortnight. In the mother’s case, I was not applied to till the 10th day; it went on to the 21st. There was not any organ particularly implicated; she was treated with



stimulants, carb: ammoniæ, porter, and blisters. In the daughter, the fever was very severe to the 11th day, when it terminated by profuse perspiration. She suffered principally from pain in her head and back, with intolerance of light, and was treated with mild aperients, followed by diaphoretics with hyoscyamus. In neither was sleeplessness distressingly remarkable. Another brother was seized with the same form of fever a few days after the subject of this case had taken ill; he was on the 5th day transferred to Sir Patrick Dun's Hospital.

"I experienced marked benefit from this form of prescription in a case of melancholia, occurring in a female aged 45, consequent on a severe domestic affliction. The exhibition of it here, however, was followed by considerable debility, requiring stimulants. This effect I consider to have been, in some degree at least, attributable to the patient having for some days previous to its exhibition refused food, and possibly been suffered to remain too long under the sedative influence of this medicine without having been offered nourishment.

"Hoping that you will excuse the hurried manner in which this case has been thrown together,

"Believe me, my dear Sir, yours,

"HENRY DWYER.

"*Camden-street, July 10, 1836.*"

CASE VI.—John Dillon, æt. 15, a servant, admitted 5th June, 1835, several days ill. On the day of his admission he had headach, thirst, heat of skin, loss of appetite and rest; his face was flushed and bloated; eyes suffused, red, and prominent; skin, hot and dry: he complained of slight epigastric tenderness and violent headach; pulse were 120, full and bounding; his whole body was covered with maculæ; bowels regular; tongue, brown, furred, and dry. Ordered

R Aquæ fontis, ʒi. Liquoris Chlorid. Sodæ gtt. x. ʒi. fiat haustus quartis horis sumendus appl. hirudines, xii. pone aurem, et repetatur applicatio si opus.

7th. The leeches bleed freely ; head appears to be relieved ; he raved a good deal during the night ; his pulse have fallen to 100, but still very full ; has a slight cough, and some bronchitis. Ordered to repeat the draught, and apply four leeches to the larynx.

8th. Slept very little ; does not appear improved ; very irritable ; raved, and was rather violent during the night ; cough better ; tongue very brown and dry ; bowels confined ; pulse 100 ; respirations rather hurried. Ordered to repeat the draught, and to have an emollient enema in the evening.

9th. Epigastric tenderness much increased ; raved continually during the night ; slight subsultus ; eyes very red, wild and staring ; pulse 114, very full ; tongue dry and brown ; teeth covered with sordès. To repeat the draughts, and apply eight leeches to the epigastrium.

10th. Appears better to-day ; epigastric tenderness much relieved by the leeching ; his strength is much prostrated ; wishes for more food ; pulse 100, and still full ; slept none. Ordered arrow root, and to repeat the draughts.

11th. The fever is again much increased ; raved violently during the night ; great prostration ; slept none ; subsultus very violent ; great thirst ; pulse 130 ; complains of a heaviness, but no pain in head ; skin very hot and dry ; eruption undiminished. Ordered to repeat as before.

12th. All the symptoms much aggravated, face flushed and red ; eyes suffused and ferrety ; teeth covered with sordes ; lips parched and cracked ; tongue black and very dry ; subsultus general and violent ; does not sleep either by night or day ; exceedingly irritable ; pulse 130 and jerking ; pupils contracted ; he lies on his back with legs drawn up ; extremities rather cold. He was ordered warm applications to his feet and the following prescription :—

R. Tartar emetici, gr. ii. Misturæ camphoræ, ℥viii. Tincturæ opii, ʒ ii. m. Sumat cochleare, i. amplum 2â q. q. horâ.

13th. The nurse reported that after he had taken the mixture three times, he slept calmly for nine or ten hours the first time for the last week. It operated largely after the second dose, the stools being thin and bilious. He has ceased to rave; the suffusion has quite disappeared; tongue is moist and cleaning. He slumbers continually, subsultus completely subdued; answers questions rationally; pulse have fallen to 98 and soft; ordered to repeat the mixture.

14th. Slept continually since last report; general appearance much improved; perspired profusely during the night. He was perfectly sensible from this day till the 17th. He continued to improve rapidly in strength and appearance. 17th convalescent.

CASE VII.—Mr. S——, residing in College, was attacked with headach, on the 3d Feb., 1836, and fever commenced on that or the following day. He was judiciously treated by Mr. Barker, of Britain-street, until the 4th day of the fever, when an increase of headach and pain in or behind the ball of the right eye, induced him to call me in. A bleeding from the arm much relieved the pain, and he spent a tranquil night. He got calomel and James's powders in small doses. On the 5th no change. 6th day of fever, maculæ began to appear, and his state became more alarming. 7th day, maculæ abundant, restlessness, debility, very frequent sighing, thirst, &c., with a sharp pulse, and return of headach. Leeches to head and nostrils were ordered; the latter because of an evident tendency to epistaxis. 8th. Doctor Marsh saw him along with us. 9th and 10th. Grain doses of Dover's powders added to his medicine four times in the night, but did not produce rest. 11th. Perfectly sleepless night and day; ordered in the evening, 1 grain tartar emetic, 4 ounces of camphor mixture, and one scruple of laudanum; 1 table-spoonful every second hour. 12th. Moisture on skin; began to sleep after second dose, and slept several hours tranquilly; is to day quite free from muttering and raving, which had commenced on the 10th day, and increased

on the 11th ; so that when left to himself he lay on his back constantly speaking, but not in a loud or boisterous manner, his eyes being all the time open ; when addressed he answered quite rationally, but on our quitting the room began again immediately to ramble. This group of unpleasant symptoms having disappeared, we did not continue the medicine, but ordered palliatives and mild nourishment ; in the evening it was judged right to apply a blister to the nape of the neck. 13th day, maculæ very abundant ; was quiet during the night, but did not sleep at all ; exhausted and nervous ; other symptoms moderate ; pulse 104 ; tongue moist ; abdomen a little swollen and slightly tympanitic ; turpentine injections ; continue palliative diuretic draughts ; chicken broth ; claret and water. At five p. m. I again saw him, and found him still quite sleepless, but without headach ; bowels moved, but still slightly tympanitic. Fearing the continued exhaustion from want of rest, I now ordered a mixture consisting of one ounce of mucilage of gum arabic, seven ounces of camphor mixture, three grains of tartar emetic, and one drachm by measure of laudanum ; half an ounce every second hour, until sleep comes on. At ten Doctor Marsh and Mr. Barker saw him ; he had slept an hour ; appeared drowsy, and did not complain of headach ; two doses of the medicine had been given ; he remained awake until eleven, when another dose caused him to sleep until three ; at four another was given, after which he slept until eight, and awoke much refreshed, and much improved in every respect ; his belly had not been moved, and was still slightly tympanitic, a symptom which yielded to the administration of two drachms of castor oil exhibited in the form of an aromatic emulsion. In the evening he was ordered to take four drops of black drop, but this procured no sleep during the night. On the morning of the 15th day we found him somewhat exhausted from a sleepless night, but with much less fever and no headach ; pulse 94, soft ; for the first time we remarked subsultus ; a family idiosyncrasy, rendering musk pe-



culiarly disagreeable, or even intolerable, we ordered a draught containing two drops of black drop, and fifteen of Hoffman's liquor, every fourth hour. In the evening he had slept very little, so that I resolved again to recur to the antimonial opiate; two spoonfuls of which produced sound refreshing sleep for several hours. In the morning he again got castor oil; and on this, the 16th day, his pulse was only 70; but still, though the subsultus was diminished, a remnant of it could be perceived, so that he could not be pronounced out of all danger.

The conclusion of this case is peculiarly instructive, and proves how insidious is the progress of fever, and how unsafe the condition of a patient, whose brain and nervous system have received a violent shock, even although the immediate consequences of that shock have been averted by the employment of decided treatment. On the 16th day we have seen an abatement, or rather a disappearance of almost every symptom of the disease, save and except a slight, a scarcely perceptible remnant of the subsultus. Great care was taken to prevent his being disturbed, and the strictest attention as to diet was enjoined; indeed he was remarkably disinclined to taking food, and it was with great difficulty that we could get him to consume a sufficient quantity of mild farinaceous diet. On the night of the 16th day he slept tolerably. The 17th day was passed without any change; but he slept none that night. The 18th day he was perfectly free from fever; pulse 70; tongue moist; bowels opened by medicine. That day he conversed too much to his friends about his removal to the country, his future plans, &c.; but nevertheless he slept several hours towards evening. This sleep was disturbed and chequered by dreams, and on awaking about eleven o'clock, he was wandering, and got eight drops of black drop, which procured no rest; on the contrary he got several times out of bed, and spoke incoherently. The raving had all subsided at 10 A. M. on the 19th day, when I was in hopes it was entirely owing to temporary excitement, and would not return; an opinion rendered pro-

bable by a total absence of all symptoms of general or local vascular excitement, of headach, &c. In this expectation, however, I was disappointed, for early in the afternoon he became incoherent; raved more and more every hour; complained of headach; could not bear the light; and when I saw him at seven, he was quite irrational; supposed himself to be travelling; and when questioned he seemed not to understand; his pulse had fallen below 60; was soft, irregular, and intermitted very frequently; skin not hot; feet cold; features contracted; tip of nose cold; he had eaten stirabout in small quantity twice during the day, but in a voracious unnatural manner; his eyes were a little red, and every thing wore a most threatening aspect. What was now to be done? In directing his head to be shaved anew, and in applying blisters to his scalp and temples, I felt I was proceeding on sure grounds; but the indications for the internal treatment were less obvious. We had arrived at the 19th day, and he had gone through a debilitating fever, and been submitted to a very active mode of treatment. Were we to leech the head? were we to apply cold? and should we immediately endeavour to mercurialize the system by means of mercurial preparations, given internally and applied externally? Such would have been the treatment a patient, under similar circumstances, would have undergone at the hands of any practitioner a very few years ago; and I have no doubt that a treatment of this nature would have speedily brought matters to a fatal termination. The writings of Gooch, however, who pointed out the diagnosis and treatment of certain cases, usually confounded with inflammatory hydrocephalus, and the influence of the truth of Dr. Gooch's statement, as illustrated by several examples in our own practice, determined Dr. Marsh, Mr. Barker, and myself, to rely on the severe blistering locally, while internally, we ordered a draught consisting of two grains of carbonate of ammonia, twenty drops of Hoffman's liquor, and one ounce of camphor mixture, to be taken every third hour. Warmth was applied

to the feet, and he was supplied with warm whey. Shortly after our visit he fell asleep, slept with little interruption for about seven hours, and awoke perfectly rational; and at eight o'clock next morning, being the 20th day, we found him much improved in every respect; the only vestige of this alarming attack that remained being some intermission in the pulse, which had become in other respects much more natural, and fuller. The bowels had not been opened; a circumstance I mention because, no doubt, some would have ordered purgatives on such an emergency, a practice which the fallen, soft state of the belly did not seem to us to call for, and which our view of the nature of the case prevented us from proposing. We ordered farinaceous diet, and a repetition of the draughts, at longer intervals. In the evening of the 21st day the pulse had lost all remnant of irregularity or intermission, and the disturbance of the nervous system had entirely subsided: from that period his convalescence commenced.

One fact connected with the cases just related is very striking, viz. the small quantity of laudanum which, in most of them, was sufficient to induce sleep; a circumstance only to be accounted for by the presence of the tartar emetic, which no doubt exerts, when given in duly regulated doses, a powerfully tranquillizing effect on the nervous system. It is also deserving of remark, that the medicine very seldom gives rise to any of the unpleasant symptoms that so frequently arise when opium alone, or any of its preparations, are given with a view of producing sleep at an advanced period of fever. The addition of one ounce of mucilage, and one ounce of simple syrup to the mixture, seems to render it less likely to disagree with the stomach. Towards the termination of fever, it not unfrequently happens that a sudden or gradual determination of blood to the head arises, and which requires a repetition of a modified system of antiphlogistic treatment, aided by blisters. This state, I have reason to believe, may be often prevented from occurring, by a timely attention to procuring sleep; for a



patient in fever, who has passed several sleepless nights, is on the verge of cerebral congestion or inflammation, as is testified by headach, wandering, and the redness of the conjunctiva. Here it is that the treatment I recommend is so advantageous, when timely applied; for if it be deferred until cerebral inflammation has set in, opium in any shape is worse than useless.

I have notes of several other cases, equally strong, in favour of the utility of tartar emetic and opium in the advanced stage of fever, but think it unnecessary to bring them forward, as the above seem sufficient for my present purpose. The particular state of the nervous system to which this combination of remedies is best adapted, may occur, along with other symptoms produced by functional or organic lesions of various organs, and which prevent it from producing the wished for beneficial result. Thus when the belly is tense and swollen, this remedy will generally fail; but I think that I am warranted in asserting that in fevers, properly treated from the first, tympanitis may commence, but will never become considerable; for, if the attention of the practitioner be applied to this symptom the moment it begins to show itself, he can in most cases succeed in arresting its progress. I have likewise seen several cases of fever, where I expected benefit from the tartar emetic and opium, and in which no good result followed the exhibition of these medicines: such failures must always occur with respect to every remedy we apply in disease, but they do not invalidate the evidence of facts, such as I have brought forward in proof of their frequent utility. In connexion with this subject, I beg leave to draw the attention of practitioners to the occurrence of *delirium traumaticum* in fevers, in consequence of the irritation produced by blisters, a species of delirium apt to be mistaken, especially in children for the delirium ushering in hydrocephalus. It is unnecessary to do more than advert to this subject, as I have spoken of it at some length in the lectures before referred to. To conclude, it is right to remark, that the relative proportions of tartar emetic and



laudanum in the mixture must be varied according to circumstances.

When congestion of the brain is known to exist, or is feared, the tartar emetic must not fall short of four grains in the eight ounces, while the laudanum should not exceed half a drachm; but where nervous symptoms predominate, the laudanum may amount to one drachm, and the tartar emetic to two grains: no general rule, however, can be laid down, *and the practitioner must in all cases watch the effects of this medicine, from hour to hour*, until he ascertains whether it agrees with the patient or not. Where a life is at stake, we must spare no pains, and must not reject a remedy because its powers render it an instrument of good or evil, according as it is administered carefully or otherwise.

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ART. XI.—*Pathological Observations on the Brain and Nervous System.* By ROBERT LAW, M.D., Fellow and Censor of the College of Physicians, one of the Physicians in Ordinary to Sir Patrick Dun's Hospital, &c.

(Continued from page 116.)

ONE of the principal objects we proposed to ourselves in the cases we have already detailed, and which have appeared in the preceding Number of this Journal, was to exhibit the value of Mercury, in what we would designate the second stage of cerebral affections. The symptoms and phenomena which mark this second stage, are as different from those of the first as the treatment they require; and we are confident that an injurious mode of practice has resulted from not observing the transition of these two stages into each other. The treatment which suited the first stage alone has been carried on into the second, although in many instances the part of the morbid affection which constituted the first stage in expiring has given birth to the second. Thus a *coup de sang* or cerebral hemorrhage, if it be not sufficiently intense to ex-

tinguish life at once, will give rise to a train of symptoms, which, however modified they may be by individual circumstances, will in all such cases, observe so much of similarity and uniformity, as to mark them as characteristic of a particular lesion. These symptoms will sometimes, either from judicious treatment, or in some cases spontaneously subside, leaving no trace behind; at other times their place will be taken by a train of phenomena so unlike the preceding ones, and so like those which we have observed to accompany ramolissement of the brain, that we do not hesitate to set them down to the account of this peculiar lesion; and when we have opportunity of examining the bodies after death, we generally find our anticipations authenticated. Pathological anatomy exhibits to us in these cases, either a clot of blood acting as a centre of irritation, and producing a softening of the surrounding cerebral structure, or blood and softened brain blended together in a confused mass. What we would wish emphatically to remark is, that observation will, in most cases, be competent to detect a change in the symptoms indicating a change of lesion, and consequent change or modification of treatment. We are free to confess that it is not equally easy in all cases to recognize this transition of one set of symptoms into the other; nor indeed does it always exhibit itself in appreciable characters, and in some cases the two sets of symptoms are mixed up with each other, and give rise to modifications, according to the promineney of each. Thus one attack of apoplexy, after its characteristic symptoms have disappeared, will leave behind it a set of symptoms indicating ramolissement; after some time another apoplectic seizure will supervene, and confuse the proper symptoms of ramolissement. It is this alternation which we have to dread, and which produces death in such cases, each successive apoplectic seizure increasing the extent of the softened structure; and every addition to this softened structure, if not acting upon the principle of *ubi stimulus ibi fluxus*, at least unfitting the organ for sustaining even the natural quantity of blood. In the management of these cases we are literally on the horns of a dilemma; we equally

run the risk of doing too much, as of not doing enough : these are the cases in which we would especially employ James's powder, in the way in which it was employed and recommended by the late Dr. Cheyne, or combine it with mercury.\* In such cases, our prognosis must be extremely unfavourable, as we have no ground to look upon our patient otherwise than as a dying man, over whose neck the naked sword is suspended.

We would here interrupt the chain of our observations, to introduce a case which has occurred to us since the preceding part of our remarks went to press. The case to which we allude is one which bears so much resemblance to Nolan's, which we first detailed, that we scarcely look upon it as out of place here. Not the least part of the interest connected with it consisted in the delusive appearance of the symptoms simulating those of common fever, so much, that a careless observer would have been easily misled by them.

Elizabeth Power, aged 40, married, admitted into hospital February 2nd; three years since, while under the influence of mercury, she caught cold, and from then till now she has never been free from uneasy sensations in her head. A fortnight ago, while the menstrual discharge was present, she was exposed to a sudden source of alarm which caused its cessation; she was immediately seized with pain of the head, sickness of stomach, and vomiting of greenish bilious matter; all which still continue. At present she complains of confusion of her head, and a disposition to faint on sitting up; she also has pain in the right temple; *tongue is thickly covered with a dense whitish nap*; has weakness of the left eye, with partial ptosis of the upper lid; pulse 66, weak; feet and hands particularly cold; an extremely offensive acid smell from her breath.

℞ Calomel, gr. vi. Pulv. ipecacuanhæ c. gr. viii. Mice, divide in partes quatuor; sumat unam 3tiis horis.

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\* The mode in which Dr. Cheyne employed this medicine was to begin with a small dose, and increase it gradually, with a view to equalize the circulation by determining to the skin.

4th. She suffered very much from pain of her head last night. Stomach is sick even without taking anything.

Abradatr. capillitium. Emplast. vesicat. nuchæ. Haust. efferves-cens. c. liquoris opii sedativi gutts. iii. 3tiis. horis. ℞ Calomel gr. vi. Extract opii aquosi gr. i. ft. pilulæ quatuor, una quartis horis sumenda. Pediluvium vesperi.

5th. Head somewhat improved, but is still confused. Stomach only retains the draughts and beef tea ; it immediately rejects every thing else.

6th. She feels herself very nervous and low. Breath still very offensive, and tongue thickly loaded with yellow slimy mucus. Mouth affected by mercury.

7th. Has been delirious all night, and could not be kept in bed ; her mind is full of the strangest fancies ; she believes that her first husband is come to life, as also three of her children. Pulse 108, small and feeble ; eyes suffused ; she has a jaded, tired appearance, from the loss of her rest. Shower bath immediately.

Hirudines duodecem pone sing. aures. Vesicat. nuchæ. ℞ Muriatis morphiæ, gr. ii. Mist. camphoræ, ʒvss. Spiritet heris nitros. ʒss. misce st. unciam tertiis horis.

9th. Delirium has ceased, but febrile symptoms have exhibited themselves ; hot skin ; tongue red at point and edges, white in centre, but not covered with the thick nap it had before.

10th. Erysipelas has attacked the head, appearing to proceed from behind forwards, involving both ears, cheeks and forehead, and giving rise to considerable swelling. Pulse 108 ; tongue white ; mind has relapsed into its bizarre fancies of her deceased relatives having come to life again ; stomach very irritable.

Apply a lotion composed of a drachm of nitrate of silver, and an ounce of distilled water, to the part affected with erysipelas.

℞ Calomel, gr. iv. Pulv. Jacobi, gr. vi. Extract opii aquosi, gr. ii. ft. pilulæ quatuor, sumat unam tertiis horis.



11th. Erysipelas has extended over the face, closing both eyes, causing swelling and deep crimson redness of nose and upper lip; the inflammation of the part to which the solution of the nitrate of silver had been applied, is much lessened. She is in a heavy lethargic state, almost approaching to coma. Pulse weak and feeble; subsultus tendinum; when roused she seems quite conscious; there is the peculiar fusty smell which has been observed to attend affections of the head.

Foveantur crura.  $\mathcal{R}$ . Carbonat. ammoniæ  $\mathfrak{z}$ i. Sulph. quiniæ, gr. vi. confect. aromatic. q. s. fiant boli quatuor; sumat unum quartis horis. Vini  $\mathfrak{z}$ iv.

Solution of nitrate of silver to be applied to erysipelatous surface.

12th. Eyes open; Erysipelatous surface less red; pulse 84; temperature of skin below natural standard. No subsultus.

Rept<sup>r</sup>. vinum et boli.

14th. Swelling of head and face much reduced; pulse steady; tongue dry, more red and shrivelled; tenderness on pressing epigastrium: we forgot to observe that she took a small quantity of tartar emetic in cardiac mixture.

Hirudines octo epigastrio.

15th. Almost all trace of erysipelas has disappeared; febrile symptoms quite gone; she complains alone of weakness and cramps of her legs, which we attribute to cold contracted by getting up while in her delirium. Mistura Cardiaca. Vini, ii.

She says she feels her head better, and more free from any uneasiness than she has done for three years. This case reminded us strongly of Nolan's; we recognised in it the features which made us regard it as an affection of the head, to which all the other symptoms were referrible. The delirium which so soon discovered itself, confirmed our diagnosis. We should ever regard with suspicion the coincidence of headach and persisting sickness of stomach. The latter is frequently the more

prominent and appreciable symptom, even when it is altogether indebted for its existence to the sympathetic connexion existing between the brain and stomach. We should especially hold this in view in the treatment of the diseases of children. In many of such cases we shall find obstinate vomiting preceding an affection of the head which is to terminate in effusion. Although Power may be said to have recovered this attack, we cannot but regard her life as being in a very precarious state: we are almost satisfied that there is in the brain some disorganization, either of its structure or its vessels, which will cause her death sooner or later. We would remark upon the application of the nitrate of silver, that although it did not prevent the extension of the erysipelas, it diminished the intensity of the existing inflammation. Our anxiety to arrest (if possible) the progress of the erysipelas was heightened by the recollection of a case in which the inflammation, after involving the head and face, extended to the mouth and throat, and produced death in the same way as typhoid scarlatina.

We now revert to our original observations, and proceed to detail the particulars of a case whose treatment, more than the identity of its nature, connects it with the preceding cases:

*Paraplegia.—Complete loss of Motion, and almost annihilation of sensation of lower Extremities. Perfect Recovery effected by Mercury.*

Edward Williams, aged 28, tobacconist, admitted into hospital April 27, 1835. Two months ago he had most perfect use of his limbs; when, on the occasion of his having taken an unusual quantity of punch, he fell down in a state of insensibility, in which he remained for two hours: when he recovered himself, he was in a state of extreme agitation, and had a general tremor of the body. In this state he was put to bed, and the next morning he felt a numbness of the lower limbs and a weakness of the knees, so that he could hardly stand. At this time his head was perfectly free and unaffected; the numbness of the limbs, as well as of the lower part of the

abdomen, gradually increased ; his bowels became very torpid ; and he soon lost all control over the discharge of urine, which came from him immediately, no matter how unfavourably circumstanced he might be to answer the call. The phenomena presented on admission were, sensibility of the lower extremities and of the lower part of the abdomen so much diminished that he scarcely feels when they are pinched ; bowels only moved by strong purgative medicines ; incontinence of urine. The spine, examined with care, exhibited no appearance of disease ; pressure upon it caused no uneasy sensation ; he could not stand, much less walk ; pulse 84 ; all the other functions were duly performed ; urine deposited no sediment.

Williams had had an attack of syphilis a year and a-half since, for which he took mercury ; and a year ago had dropsy, from both of which he felt his health perfectly restored. Our treatment consisted in giving him mercury till the system was affected with it : this was speedily accomplished by giving him two grains of calomel and half a grain of opium three times daily : when the gums became tender, we gave him the *infusum Arnicæ*, and the extract of nux vomica, beginning with half a grain, three times daily. To obviate the inconvenience of this medicine accumulating in the system, and thus producing injurious effects, we have generally given it in combination with a small portion of a vegetable cathartic, which we have not found to interfere with its efficacy. When this precaution has been neglected, we have seen the medicine produce a spasmodic action of the muscles of the lower extremities, by which the heel is almost drawn up to touch the buttock, resembling the affection designated stringhalt, in the horse. In one case we saw this medicine produce *trismus*.

After Williams had taken the arnica and nux vomica for some time, we again returned to the mercury, and again made his mouth sore. He said that he was conscious of an improvement after each salivation. He had more sensation in the limbs, and when he sat he did not feel as if the seat were slip-

ping from under him. He was much tormented with irregular action of the muscles of the lower limbs, especially at night ; at one time he complained of the feet being forcibly pressed against the foot-board of the bed, at another time that his legs were drawn up. He complained too of a sense of tightness about his knees, as if they were squeezed in a vice. After this second salivation, we again resorted to the Arnica and nux vomica, increasing the dose of the latter to two grains\* thrice daily. We also applied *moxæ* to each side of the spine in the lumbar region, which we established as permanent issues ; strong stimulating liniments were rubbed to the limbs, and a kind of champooing exercised, after he had had the vapour bath. His mouth had been three times affected with mercury, and in the intervals the treatment we have alluded to employed ; and on the 3rd of August our report was: his limbs have quite regained their normal sensibility. He can now walk well without a stick. He has only to complain of a sensation of tightness in his knees, with a very occasional tightness in the lower part of the abdomen. He continued in hospital for some time, daily improving in the use of his limbs, when on the 1st of September he directed our attention to a fulness and swelling in the upper and posterior part of the left thigh, which he said had been coming on for ten months, but which caused him no pain or uneasiness, except when he sat. This swelling involved the buttock (effacing the line which separates it from the thigh) and upper part of the thigh ; it conveyed a distinct sense of fluctuation, so that when one hand was placed upon the buttock, and the other upon the lower part of it, the pressure of the one communicated an impulse to the other. There was no redness of the skin nor circumscribing hardness, nor pain upon pressure. The *weight* of it alone caused him to complain.

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\* We have seen M. L'Erminier in La Charitè at Paris give thirty grains of extract of nux vomica in the course of one day in a case of paralysis.



He perceived this swelling long previous to the affection of his limbs, and never expressed the slightest uneasy sensation when the spine was pressed in all its length. He suffered so little inconvenience from it, that we contented ourselves with the prospect of promoting its gradual removal by the absorption of the contained fluid, and with this view applied blisters from time to time, then bandages; and when he determined to leave the hospital and return to Wales, his native country, we put on a mercurial plaster. Its size had certainly diminished before we parted with him. The recovery from the paralysis was complete.

The preceding case presents peculiar features. One of the most remarkable circumstances in it is the mode of its attack. The sudden loss of consciousness, which soon passed away, leaving behind it the elements, as it were, of the disease, which now began to develope itself. Many cases of this species of paralysis have come under our care, and have been almost all attributed to cold and wet. Herdsmen employed in washing sheep, and labourers in making ditches are frequent subjects of it. There was one symptom wanting in Williams's case, which we rarely miss, especially when the disease has existed for any length of time: I allude to the urinary discharge, which almost invariably deposits a thick sediment, consisting of a dense ropy mucus.\* The degree in which this deposit exists has served us as a measure of the disease, and according as it has increased or diminished, have we observed the condition of our patient to improve or grow worse; in fact it has been to us a kind of index.

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\* We attribute the condition of the urine, in this case, not to any vitiation of its secretion, but to its action upon the mucous coat of the bladder, whose vitality is impaired from the diminished nervous energy. We have seen the mucous tunic of the bladder, in similar cases, reduced to a soft pulp; and in one instance, the catheter penetrated the posterior wall of the organ, although no force was used in its introduction: it was pushed too far. Death followed.

Whether there existed actual disease of the vertebræ or not in Williams's case, we shall not hazard a decided opinion. We only know, that we looked for it, (bearing strongly upon our minds how insidiously such disease often comes on, and how frequently it has made considerable progress before it indicates its existence by its ordinary symptoms,) and could not discover it. Although we see in the tumour formed in the upper and posterior part of the thigh, and which we regarded as one of these abscesses which the French pathologists denominate *absces froids*, something to countenance the opinion of the disease of the bone, still we do not look on it by any means as conclusive. We have never seen a better instance of psoas abscess than one which we met with perfectly independent of caries of the bone. But be the pathology of the disease what it may, be it inflammation originating in the bone and extending to the spinal marrow and its membranes, or inflammation primarily engaging the spinal marrow and its membranes, we look upon the fact of the affection yielding to mercury, as one of the highest value and importance. This disease, where it has made progress, is most intractable: we have seen it resist every means that the best directed skill could suggest. We therefore feel that we have great reason to congratulate ourselves if we have a remedy to meet it before it has reached its almost incurable point. When Williams first came under our care, we own we felt far from sanguine as to the result. The success of our treatment would induce us to give mercury a fair trial in every such case, no matter how aggravated in its nature. Mr. Colles's valuable experience bears testimony to the efficacy of this remedy in this class of diseases.

The next case which we shall detail, although included in the same nosological category as the preceding ones, are adduced more on account of their intrinsic and peculiar interest, than from their connexion with those already detailed.

*Hemiplegia*.—Anne Gorey, aged 21, unmarried, admitted into hospital May 22nd. The evening before admission she

was seized with hemiplegia of the right side, and with loss of speech. The account we got of her, was that a month before she had been in another hospital for swellings of her legs, produced by cold, to which she had been exposed while taking medicines to restore absent menstruation. The swellings were reduced, but she continued very weak. Her loss of speech shut us out from personal information at the time of her admission; but as she recovered, she furnished us with the following interesting account of her attack.—She had been for some time subject to a constant pain in her head, not confined to any particular part of it; to *tinnitus aurium*. She at times almost lost her sight, and often found her speech so much embarrassed, that she could scarcely express herself; her stomach was generally sick in the morning. These phenomena were always much aggravated in damp weather. The menstrual discharge had been long absent. On the day of her attack she had felt herself particularly weak and relaxed, and retired to bed earlier than usual; while she knelt at her prayers, on looking towards the wall of her room, she imagined she saw a man's hand, (it was a mark on the wall caused by damp,) and almost frightened to death she hurried to bed, and while holding her hand before her eyes, she fancied she felt the hand that had terrified her fall upon her face; she attempted to call out for assistance, but, to her utter dismay, she found that she had lost her speech; she was therefore obliged to continue in this state of alarm till the next morning, when she was found in the state in which she was brought into the hospital. The strange hand which she supposed to be laid upon her face was her own that had fallen paralyzed upon it. The phenomena exhibited on admission were, hemiplegia of the right side, involving the extremities and side of the face, (there was not, however, a complete loss either of sensation or motion of the extremities,) the mouth drawn to the left side; the tongue deviating to the right; pulse 78; heart's action quite natural; pupils normally dilated; she complained of no headach; bowels not free.

Emplastrum vesicat. nuchæ. ℞ Decocti aloes, C. ℥vi. Electuarii Scammonii, ℥ii. ℥ Sumat ℥i. 3tiis horis, ad effectum. Pediluvium irritans vesperi.

We now directed her the following pills:—

℞ Pil. Galbani c. Pil. Rufi. ā ℥i. Sulphat ferri. gr. x. ft. pilulæ decem. Sumat duas noctu.

On the 1st of June the menstrual discharge, which had been absent for three months, appeared and continued for five days; after which her speech improved much, the tongue deviated less from the median line, and the sensation and motion of the paralyzed limbs were considerably increased; bowels continue torpid.

Rept<sup>r</sup>. Decoctum Aloes C. cum Electuario Scammonii.

June 17th. To-day it was that she was able to give us the account of her attack. She says she is conscious of a considerable improvement of her memory; she finds much more difficulty in pronouncing some words than others; wherever the letters *ch* meet, there is her difficulty greatest.

Occasional blisters to the nape of the neck; pills composed of sulphate of quinine, sulphate of iron, and aloes; and irritating foot baths at night, restored her so that she was enabled to leave the hospital on the 4th of July, with speech perfect, only a little slow and measured, and with entire recovery both of sensation and motion of the paralyzed extremities.

What are we to suppose was the pathological condition of the brain in this instance? We confess we do not feel it easy to decide whether the symptoms depended upon cerebral hemorrhage or upon congestion. We believe that a state of permanent congestion, owing to suppressed menstruation, and announced by constant headach, preceded the attack. But we would inquire if a sudden increase of this congestion be sufficient to account for symptoms which continued so long. We are disposed to regard their duration as a strong circumstance in favour of sanguineous effusion. The treatment successfully employed in this case, proves how difficult it is to lay down any



precise plan calculated to meet all the modifications which any disease may assume ; how each individual modification requires its appropriate management ; and how necessary it is for the physician patiently to investigate the antecedent condition of the subject of his case. This was a case in which we felt assured that strong measures were neither called for, nor could with impunity be resorted to. We steadily held in view the first link in the morbid chain, the suppressed menstruation, and found an immediate improvement of the symptoms to follow upon its restoration. The case furnishes us with an interesting illustration of how susceptible the mind is of delusion and false impressions, when the *physique* is weakened and prostrated.

*Catalepsy.*—Mary Whitmore, aged 22, admitted into hospital July the 15th. Eight months since, she went to see a friend of her's in Jervis-street Hospital, who was affected with Catalepsy. She saw her in a paroxysm of the disease, and a week afterwards, she herself became affected in exactly the same way. She was received into Richmond Hospital, where we had an opportunity of seeing her. She exhibited a perfect appearance of health ; nor was her physical conformation such as to bespeak mobility of the nervous system. While in Richmond Hospital, which was for a period of four months, she underwent a variety of treatment, consisting principally of bleeding, and of irritating applications to the spine. The longest exemption that she enjoyed from a paroxysm of the disease, was a fortnight, and during this time she lost her speech. When she came under our care her appearance exhibited a great change from what we had seen it before : her face had acquired the livid congested appearance which epilepsy imparts. The attacks of the disease had become very frequent. Each paroxysm begins with a general shudder, or what the French call a *crispation des nerfs* ; this is quickly followed by heaving of the chest and abdomen : the stethoscope now applied indicates no respiratory murmur ; the heart beats violently ; the belly becomes tympanitic ; she occasionally makes a noise like the

crowling of a cock. Put her into any position, no matter how painful or fatiguing, she remains in it during the paroxysm: when things have continued in this way for four or five minutes, a strong convulsion comes on, and she requires two or three persons to hold her; the face now becomes flushed, and the veins of the neck very turgid. When the paroxysm has ceased, it leaves her in a state of great exhaustion. When not under the influence of an attack, the circulation is not disturbed. Appetite entirely gone. Menstrual discharge has been suspended since the commencement of her illness. She complains of no headach; has occasional dysuria;\* sleep interrupted by unpleasant dreams; has a painful sensation along the spine, independent of pressure. We applied a long and narrow blister along the spine; directed for her, sulphate of quinine, shower bath, aloetic purgatives, and irritating foot baths from time to time. The indications which we steadily held in view, and acted upon, were to strengthen the constitution and to solicit, without forcing the menstrual discharge. We were obliged to give up the shower bath, as she thought that it brought on an attack. We also fancied that she derived benefit from substituting sulphate of zinc for sulphate of quinine, a change which experience of the value of the former medicine, in chorea, led us to make. During her stay with us, which occupied a period of six weeks, she had many changes; at one time, being for days free from an attack—again, having as many as eighteen in one day; nor could we account for these changes. She seemed at times quite imbecile. She had an appearance of a return of the menstrual discharge. At a time when she was in the enjoyment of the longest exemption from a paroxysm of the disease, she completely lost her speech, and could not utter a sound. This exemption from the disease continued from the 6th to the 19th of August, on which day we

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\* We have frequently observed this symptom to be present in the diseases denominated neuroses.

reported that she had had, the day previously, eight fits; after which she recovered her speech. The weather was marked by a highly electrical condition of the atmosphere; there were violent thunder storms all day. Her memory seems to have been in abeyance during the time that she laboured under the loss of voice; she only remembers that when she made an effort to speak, she experienced a sensation of tearing at the top of the sternum. The day on which she recovered her voice, she felt very unsteady on her limbs, so that she could not trust herself to walk. Three days afterwards the same kind of weather returned, when she said she felt thrills through her which reminded her of her sensations when she used to be electrified.\* She now became much better, and left us on the 23rd of August.

Though this case exhibits to us a true specimen of catalepsy, still we conceive it to be little more than an aggravated case of hysteria. In fact we regard all these diseases, viz.:—Hysteria, hypocondriasis, chorea, catalepsy, &c. to be but modifications of the same disorder or disease, although *facies non omnibus una est*. These are some of the diseases which have latterly been referred to, and considered to depend upon spinal irritation. Of the exquisite tenderness and pain produced by pressure upon some portion of the spine in some of these cases, we have had experience: we have also found the advantage of applying our remedies here, in preference to applying them elsewhere, to alleviate symptoms seemingly dependent upon this

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\* It is to be regretted that so little attention has hitherto been bestowed upon the effects of weather and atmospheric influence upon the animal economy, in the production and modification of disease, beyond the mere and palpable effects of variation of temperature. The influences of electrical states and conditions of the atmosphere have been wholly overlooked. We should now hope that the interesting physiological inquiry which goes so much to identify the nervous with the electric fluid, would lead to a closer examination of these influences, from whence we may reasonably look for much valuable information, whether it terminate in the establishment of the identity of these fluids or not.

irritation ; thus have we vainly endeavoured to check vomiting by blistering the epigastrium, where it has rapidly yielded to the same application to the spine. Still we cannot go the length of admitting that the affection or irritation of the spinal nerves is the source and seat of the disease in these cases. In the first place, were the spinal tenderness more constant than it really is, the symptoms are not expressive of derangement of the functions of the spinal nerves, but of nerves which are charged with functions quite different from those of the spinal nerves ; we allude to the ganglionic or sympathetic system of nerves. The most constant symptoms are, dyspepsia ; irregularity in the secretions, especially that of the liver ; irregular action of the bowels ; irregularity in the Calorific function ; and in many cases irregular action or palpitation of the heart ; and most constantly great depression of spirits. Now none of these symptoms are directly connected with the functions of the spinal nervous system, but all are either immediately or indirectly connected with those of the ganglionic system. Even in the disease which exhibits in its symptoms most palpable and direct dependence upon the spinal nerves, colica pictonum ; even here the derangement of the functions of the ganglionic nerves, the disordered state of the stomach, and constipated state of the bowels, generally precede the weakness and paralysis of the extremities by an interval of variable duration. In most cases the organic functions have been often and deeply affected before the extremities have become involved. Nor are we at a loss to account for the pain in some part of the spinal column when the ganglionic nerves are really the seat of the affection ; for we know that a direct anatomical communication exists, through the medium of nerves, between the ganglionic nerves and the posterior branches of the spinal nerves. If it be asked why do not the ganglionic nerves give expression to their affections, in a perversion or alteration of sensibility exhibited in themselves, and not in distant nerves ; we answer that nature, in order to secure these nerves in the due performance of their functions, has endowed them with an insen-



sibility to irritation, so that it is in vain that we apply an irritant to one of these nerves, it neither causes pain, nor produces contraction in the muscles which it supplies. Again, it may be inquired, how are you to explain the decided advantage that has resulted from applications to the spine, as for instance, in checking vomiting, when it was to no purpose that you made use of the same applications to the epigastrium? If we are warranted in believing, that the vomiting depends upon an affection of the nerves proceeding from the Solar Plexus to the stomach, an application to the spine will be nearer to the source of irritation than an application to the epigastrium. And again, the effects of the application upon the spine itself, from its sympathetic connexion with the seat of the original affection, must be productive of advantage.

From hence we would conclude, that what is called spinal irritation, and to which so many of the diseases designated Neuroses are referred, is only accidental, and not essential to these diseases: that even the existence of pain in the spinal region proves nothing, as it is no novelty in the system to have pain at a considerable distance from the real seat of the disorder; for example, how often is attention exclusively directed to the knee in affections of the hip joint: that absence of pain in the ganglionic nerves, though the seat of the disease, is chargeable upon their physiological insensibility; and that the prominent features of those diseases which have been supposed to depend upon spinal irritation, do not express derangement of the functions of the spinal nerves, but of the ganglionic nerves. We would further add, that the treatment of the diseases supposed to depend upon spinal irritation, directed exclusively or mainly to the supposed seat of these diseases, has been most injurious. Thus have we seen the subject of one of these cases, in which there happened to be a tender spot in the back, condemned to remain constantly confined to her sofa, and with irritating applications continually applied to her back. Of such cases we may say, there are none to whom air and exercise are so absolutely essen-

tial, and consequently there are none whose disorder is more aggravated by their want. We would also say, there are none who are less in a condition to bear the irritating applications to which they are so frequently subjected; it is, in fact, to add fuel to the flame.

The extreme pain upon pressure of the spine in some of these cases is very remarkable; we have seen it produce syncope. This intensity of pain we regard as characteristic of this irritation as contradistinguished from disease of the spine. It is thus that we have seen abdominal tenderness dependent upon this nervous irritation mistaken for, and treated as peritonitis.

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ART. XII.—*Periostitis of the Orbit, with some Observations.*

By JOHN HAMILTON, L. R. C. S., &c.

THE diseases of the orbit are often of so obscure a nature, and from the proximity of the brain and organ of vision, unless rightly understood, give rise to such alarming symptoms, and from improper treatment, lead to such disastrous results, that I am induced to relate the following case of periostitis, by no means a common disease in that situation, and which, besides its rarity, offers some other points deserving of attention.

Mary Falkner, æt. 33, florid complexion, married, and has had three children; the two first alive and healthy, the last a miscarriage, at seven months, came to me at the South Eastern Dispensary, complaining of great pain in the left eye, and side of the head, with impaired vision. A considerable protrusion of the eye-ball was at once observable; the eyelids, especially the upper, were swollen and puffy looking, filling up the usual depression beneath the eye-brow, of a dull red colour, streaked with veins. The eye-ball presented no marks of inflammation, a few tortuous veins being alone seen at its upper and inner part. The iris was of a greenish hue; the pupil natural as to size, but not shape, being oval from side to side,

and at the upper and back part a bright green spot, of irregular shape and metallic lustre, was very distinct. The pain complained of was most intense, referred to the eye-ball, but darting into the head, the whole left side of which was affected ; worse at night, and depriving her of sleep. It was aggravated by the least motion of the body or eye, and by lying on that side. There is also a distressing feeling of sand in the eye, probably produced by the friction of the tense eye-lids over the protruded ball. Sight is much impaired, objects appearing misty and indistinct, and on looking down double, *muscæ volitantes* are constantly before the eye. She is subject to giddiness and lightness of the head ; pulse quick and full, tongue furred.

Three months ago she miscarried, and supposes she got cold ; the eye became painful, and the eyelids red and swollen. Since then the pain has gradually increased, and vision equally diminished.

At first sight, I was inclined to set it down as an incipient case of fungus hæmatodes ; and though usually the first approaches of that disease are not marked by such pain, yet even in this respect it bears a remarkable resemblance to some of the cases related by Mr. Wardrop ;\* and in the appearance of the eye itself, was precisely what he describes, and what I had myself previously seen. But the woman's florid complexion and healthy appearance, and the vision still continuing, though impaired, led me to doubt the soundness of this opinion. The next most obvious things were, the presence of matter, or some tumour in the orbit, but the most careful examination failed to detect either. As the symptoms were such as would, at least, warrant the conclusion that some of the tissues of the part were inflamed, I resolved, though in much doubt, to try the effect of antiphlogistic treatment. Leeches, cupping, blisters, and active purgatives were resorted to without the least benefit ; and

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\* Wardrop on Fungus Hæmatodes, p. 44.

finding the symptoms daily becoming worse, I brought her to a surgeon, in whose judgment and experience I completely confided. He would give no decided opinion as to the nature of the disease, but his prognosis was most unfavourable. He recommended the trial of small doses of the oxymuriate of mercury; but, as the stomach was now so irritable that this medicine could not be borne, it was given up; and after some little time I got her admitted into the Meath Hospital.

The prominence of the eye was now so much increased, that it had the appearance of being larger than the other, and the eyelids could not be completely closed; the protrusion was in the direction downwards and outwards. The pupil, dilated a few days before by the extract of Belladonna, has never since returned to its natural size, but now appears prevented from closing by the lens being pushed against it; it had still the same oval form; the lower edge of the iris was turned in; the metallic spot was much more forward, and now seemed to occupy the whole of the pupil, giving it a greenish and rather opaque look; a small, brown, waving line, like a vessel, was seen crossing it. She got no relief from the pain night or day, and though mitigated for a short time, by leeching, it soon returned worse than ever; the stomach, too, became so irritable that nothing would stay on it, and the vision was reduced to distinguishing dark objects between her and the light. Though the irritability of stomach was allayed by the application of a blister, the other symptoms became worse, in spite of a variety of treatment, and she left the hospital hopeless of getting any relief.

Although different views were taken of the case by the experienced surgeons of that institution; yet the general impression was that it was decidedly malignant, an opinion after the description I have just given, that was certainly most reasonable; and I am inclined to believe, that had not the extent and severity of the pain in the head referred to the inside, intimated the likelihood of the disease being deep-seated, if not to the extent of



engaging the brain, the question of the excision of the eye would have been seriously considered, which the woman, from her suffering, would readily have consented to. It was about a week after she left the hospital that I first detected what the disease really was. On carefully examining the eye I pressed hard on the orbit, and so much pain was given, that the existence of periostitis in this situation instantly struck me; and further examination shewed the whole upper and inner part of the orbit, as far as the swollen lid allowed me to examine, to be equally tender, leading to the conclusion that the disease extended still further back. An explanation of the phenomena of the case became easy; the inflammation of the periosteum and the consequent effusion between it and the bone fully accounted for the pain, swelling, protrusion of the eye, &c.; and she now, for the first time, confessed that she had been disordered by her husband eight years previously, had taken mercury; but shortly after, an eruption with (apparently) iritis had shewed itself, and subsequently sore throat, and occasionally, for the last few years, pains in the bones. The disease being understood, the treatment became obvious; she was put on calomel and opium, with the decoction of sarsaparilla, and at the end of six weeks' salivation having taken place, she had lost all pain, had regained her health and spirits; the eye had nearly returned back into the orbit, the swelling had left the lids, and vision was sensibly improved. In this state she was taken to the Meath Hospital to shew the improvement that had occurred. I met her a few days ago, nine months since she first came to me; there is no difference between the two eyes in appearance; her sight is tolerably good, though still misty, and she has not experienced any pain since.

The above case forcibly exhibits the difficulty of diagnosis in periostitis in this situation, though had the mistake merely rested with myself, I should not have thought it important enough to dwell upon. Mackenzie, whose vast experience in diseases of the eye entitles his opinion to the greatest weight, acknowledges this difficulty, and after stating the causes to be

the variety in the pain, and the appearances of the eye and eye-lids, &c., says: "neither can we pretend to decide in cases of this dubious kind, whether thickening merely of the periosteum, thickening of the bones, or such a tumour as we call exostosis, be the cause of the exophthalmos:"\* and again: "the extirpation of the protruded eye-ball has also sometimes been resorted to in cases of exostosis of the orbit, where the symptoms were too obscure to lead to any decided diagnosis."† We have already mentioned the circumstances which probably prevented that extreme measure being resorted to in the present instance.

It may be useful to consider in detail some of the more prominent features in this case, viz.: the protrusion of the eye-ball, the redness and swelling of the eye-lids, the pain, and the metallic spot at the bottom of the eye. Mackenzie, who has written more clearly on this subject than any writer I am acquainted with, observes, that "when the bones of the orbit inflame from syphilis, after pain in the seat of the disease, not in general acute, there forms a tumour of the eye-lids, slightly red at first and but little painful to the touch; but which slowly advances in redness, pain and size, till it is felt to be fluctuating, and either bursts of itself, or is opened by a lancet; but patients rarely apply till the abscess has burst."‡ This, however, can be but a rare form of disease, and as a termination of periostitis is uncommon, the effects of inflammation on the periosteum are various, according to its acute or chronic character, its being idiopathic or the result of syphilis, scrofula and mercury. Its terminations may be classed under six heads, viz.—

1st. Simple thickening of the periosteum, sometimes to the extent of half an inch or more.

2nd. An effusion of serum between the periosteum and bone.§

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\* Diseases of the Eye, p. 46.

† Ibid. p. 34.

‡ Ibid. p. 47.

§ When a node becomes inflamed, red, swollen, and tender, and fluctuation is distinct, the exit of pus is generally looked for on opening it, and so pus is often discharged; but I have seen several instances where the fluid let out was a reddish serum.

3rd. A deposition of a cartilaginous substance between the periosteum and bone, often going on to the next division.

4th. A bony deposit in the same situation.

5th. A cheesy matter, often accompanied by inflammation of the bone itself, and followed by caries and exfoliations of bone. This occurs in scrofulous constitutions, broken down by syphilis and mercury.\*

6th. The effusion of pus between the bone and periosteum, generally the result of the acute form.

In the five last, there is always more or less thickening of the periosteum itself, and though sometimes absent, more or less redness and œdema usually present themselves. In the present case I conceive the inflammation to have terminated, first in the effusion of serous fluid between the bone and periosteum finally becoming cartilage; for had it been mere thickening of the periosteum, the protrusion of the ball would scarcely have been so great; had it been bony, though the pain and other symptoms might have been subdued, the bony mass remaining would have still kept up the exophthalmia, or only disappeared after protracted treatment, had it been either cheesy or puriform, the disease would have had a more rapid course, or the exhibition of mercury in one case been injurious, in the other ineffectual to remove

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\* It may not be uninteresting to give the dissection of a node of this description, which had been opened previous to death, and discharged a cheesy matter. Where the skin had been red round the opening, the cellular tissue was found vascular, and matted together with the skin and fascia. A few inches beyond the centre of the disease, the periosteum was first seen quite healthy; a little nearer slightly vascular; nearer still, filled with many vessels, thickened, and hard to be separated from the bone, which itself was redder than natural, rough and soft, being easily sliced with the knife. This condition of the bone gradually increased, the cut surface showing great vascularity, till at length, for the size of half-a-crown or more, it was deprived of periosteum, more prominent, rugged with small loose dead pieces of bone, and in the centre a larger piece quite dead, of a pale yellow colour, appearing all earthy matter. The whole of this surface was covered with a thick yellow inodorous pus. In one place the periosteum was greatly thickened, and almost like cartilage.

the pus: it is obvious that mere œdema would have been insufficient to have protruded the eye to such an extent, were not the cause, from the uniform direction of the protrusion, plainly a fixed one.

It will be observed that the pain, both in degree and extent, was unusually severe, and formed one of the most prominent and distressing symptoms; and though the severity of the pain in periostitis has been often insisted on, it yet appears that little stress has been laid on its *extent* beyond the limits of the part actually diseased. Experience, however, of the inflammation of the periosteum, in common with the other fibrous membranes, informs us, not only how acute the pain is, but how very extensive is the continuous sympathy.

I recollect a case where the disease was confined to the extent of the size of a shilling on the tip of the acromion of the scapula, yet from whence at 7 o'clock every evening, the pain began darting up along the side of the neck, behind the ear, and across the temple and forehead, and so intense as to cause the eyes to overflow with water. I have also knowledge of two other cases, one of which I attended myself, in both of them the periostitis occurred at the lower end of the sternum and sternal ends of the ribs at the left side. In one, previous to my seeing it, the excited action of the heart about the tumour, causing violent pulsation, was so great, accompanied with dyspnœa, that the surgeon was inclined to regard it as a case of thoracic aneurism; in the other, from the excessive palpitation and strong impulse, it was considered to be disease of the heart, and with this view digitalis administered for some time in vain.

It has been already observed how exactly similar the metallic spot at the bottom of the eye in this case, was to that of the incipient stage of fungus hæmatodes. In the examination of all doubtful cases it is important to bear this symptom in mind, as it was dwelt on by every one who saw it, and tended perhaps more than any other to mislead the diagnosis. As the disease advanced, the spot became larger and more forward, and



presented precisely the appearance mentioned by Mr. Travers, of a coloured blood-vessel passing across it. It was obviously caused in this case by the pressure forward of the back of the eye by the tumour in the situation of the periostitis.\*

The redness and swelling of the eye-lids will present itself as a sign of inflammation of any of the structures within the orbit ; the formation of abscess in the cellular tissue here is perhaps the most common. It was not overlooked, but where abscess forms, there is a hard, flaggy feel, which softens, and finally fluctuates at a point ; here the swelling was uniformly soft and flabby. The same difficulty attends this in common with the other symptoms, which the following case I saw under Dr. Stokes, to whose kindness I am indebted for the particulars, will best illustrate.

A man aged 40 experienced for four or five days a most racking pain in the right orbit, side of the head and temple. When he came to hospital these symptoms were getting worse, attended with high fever, but no derangement of the intellectual functions. The most active antiphlogistic treatment was resorted to for four days, without any alleviation ; at the end of which time in the course of one night the eyelids became enormously tumid and red, which extended for a certain distance to the temple and cheek ; the eye was extremely protruded downwards and outwards, but vision not impaired. It was now thought the symptoms might be all attributed to the existence of an abscess in the orbit ; an incision was accordingly made through the upper eyelid, but though first a scalpel, then a bistoury were plunged very deep, no matter issued out : a poultice was ordered ; and next day no pus having appeared, a bistoury was swept nearly right round the eye, and so deep as almost to endanger the optic nerve. This was not more successful than the former operation ; every symptom became aggravated, and on the fourth day he became stupid, and soon expired ; his intellect

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\* Travers' Synopsis of Diseases of the Eye, p. 219.

and vision continued unimpaired till within the last few hours. A post-mortem examination shewed the swelling in the orbit to depend on the effusion of serum, no matter being discovered, but a circumscribed abscess existed in the right anterior lobe of the brain, the rest of the brain being healthy. In the case of Master T., related by Mr. Crampton in vol. i. of the *Dublin Hospital Reports*, where matter was effused between the periosteum and bone of the roof of the orbit, the swelling of the upper eyelid extended beyond the brow.

A few days since I treated a case of periostitis occurring over the external angle of the orbit, in which an œdematous swelling of a pale red colour occupied the eyelids; indeed it is next to impossible that periostitis could exist in the orbit without such swelling. I am therefore inclined to look upon this appearance, the peculiar shrinking tenderness when pressure is made on the bone, and the existence of a pain with periodical nightly exacerbations, as the most valuable signs in the early stage of periostitis in the orbit; the exophthalmia change in the appearance of the eye and impaired vision to be looked for in the latter stage, when effusion has taken place, and truly when the disease has advanced to this stage, as in the case I have related, it becomes a matter of the greatest difficulty to give a decided diagnosis.

Having mentioned the fact of this affection having been mistaken for one of a more malignant character, it may be well to relate a very well marked case of fungus hæmatodes of the eye, where I saw the eye removed by Mr. Porter, which while it presents some common and striking points of resemblance with Falkner's case, offers other no less obvious points of difference, such as rapid progress, quick loss of vision, change of structure, and shattered health, that may in doubtful cases serve to clear up any difficulty. It presents likewise a rare instance of the non-recurrence of the disease.

Maria Richardson, aged 23, always of a delicate habit; married twelve months ago; two months since had a still-born child; immediately after her confinement she was attacked with

dimness and pain in the left eye, accompanied by very severe rigors, and a sensation of a small foreign body, like sand, between the lid and ball of the eye; she says her eye was red and looked swollen. From the second day of this attack she was unable to distinguish dark from light; her eyelids were swollen; no discharge of mucus, but profuse scalding lachrymation; the pain in the eye and left side of the head was intense, and prevented her sleeping; she was salivated, blistered, and leeches, without relief, the leeches rather appearing to aggravate the pain. When admitted into hospital the upper eyelid appeared swollen and of a purple red colour, the eye constantly closed, and a great discharge of tears; the eye-ball extremely prominent; the conjunctiva inflamed, with little knobs on it formed by vessels; the cornea is rather opaque, seems thickened, and is very prominent; the anterior chamber is obliterated, the iris lying against the cornea; the iris of a dark brown colour, the healthy one being of a greyish blue; on looking to the bottom of the eye there is a shining metallic appearance, and the lens is dislocated and pushed forwards; pain in the eye, temple, and left side of head, severe.

Mr. Porter removed the eye.

On making a section of it, a quantity of brown matter gushed out; the anterior chamber was obliterated, the iris resting against the cornea, being pushed forward by the lens, which was of an amber colour; the lens itself was pressed forward by a fungus, which adhered firmly to the choroid and retina, but did not engage the sclerotic. The fungus anteriorly consisted of a white consistent matter, and of the brown matter contained in two cysts; it nearly filled the posterior chamber: the optic nerve was sound. The operation was performed in June 1833, and Mr. Porter informs me that he lately saw this patient quite well.

In a paper, the objects of which is mainly to shew the difficulty of diagnosis of periostitis in the orbit, and the general obscurity which attaches to all diseases occurring in this situation,

or affecting it from contiguity, little observation will be expected on the treatment. The manner of treating periostitis here is of course the same as elsewhere, and is generally well understood. It is a very manageable disease; and from the many opportunities I have had of witnessing the practice of others, and from my own more limited experience, I have no hesitation in saying that mercury is by far the best and most certain means of cure. I do not mean to assert that it does not yield to other means, on the contrary I have observed the decoction of sarsaparilla with nitric acid, tincture of hyosciamus, or liquor potassa, and especially Dover's powder, successful in numerous instances, and where the disease is the result of cold caught while taking mercury, or in cachetic broken down habits, are often the most judicious means. But they are usually tedious and frequently fail, and among the numerous applicants at the dispensary with this disease, after giving these remedies a fair trial, I have been obliged to resort to small doses of the oxymuriate of mercury, and so rapid has been the return to health, generally in about ten days, after weeks of pain and sleepless nights, that it has been a cause of regret, that it had not been given sooner. Nor have relapses, always to be looked for, appeared the least more frequent (and this I have carefully noted) in those cured in this way, than in the others, whether idiopathic or specific, relieved by the non-mercurial plan. The oxymuriate of mercury in small doses in the chronic form, and calomel and opium in the more acute, with local bleeding and blistering, generally succeed in removing the disease. When it becomes either very obstinate or violent, and and where situation permits, the plan first insisted on by Mr. Crampton may be required, that of dividing the inflamed periosteum. Perseverance is of all things necessary, and even where a bony deposit has taken place, we should not despair of removing it. A case is mentioned by Bryer of a man who had a syphilitic bony node in the maxillary sinus, which protruded through the orbit and displaced the eye, but which was not



completely cured till he had taken the oxymuriate of mercury for three months, to the amount of 128 grains. I have had very little experience of the influence of the hydriodate of potash on the disease. In a very well marked case of periostitis of one of the meta-carpal bones, with chronic phagedenic ulceration of the pudenda, although the latter was completely cured, the inflammation of the periosteum was not in the least degree affected by it.

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ART. XIII.—*Case of Aneurism of the Aorta, with Disease of the Semilunar Valves, attended with some Peculiar Symptoms.* By DAVID HASTINGS MAC ADAM, M. D., one of the Physicians of the City of Dublin Hospital, of the South-eastern General Dispensary, and Assistant Physician to the Institution for Diseases of Children, Pitt-street.

[Read before the Surgical Society of Ireland.]

MARY WILLIAMS, æt. 35, a widow, of a leucophlegmatic temperament, and a large frame of body, was admitted into the City of Dublin Hospital on November 23rd, 1835. She states that she has been subject to cough, with copious expectoration, dyspnœa, and occasional hæmoptysis, for several years; also to fits of palpitation, aggravated by walking, especially by ascending stairs, sometimes accompanied with oppression and tendency to syncope. About a year and a-half before admission her catamenia ceased, since which she has suffered from severe pains in the loins and right hypochondrium, anorexia, irritable stomach, and coppery taste in the mouth; urine small in quantity, and of the colour of porter.

About six weeks previous to admission she felt a sort of tension and lassitude in the lower extremities, accompanied with abdominal pain, chiefly in the epigastrium and both hypochondria, especially the left, aggravated by coughing; also, some pain across the small of the back; tenesmus and urgent

thirst. Shortly after, the lower extremities became swollen, and the tumefaction gradually extended upwards to the abdomen, which also became similarly affected.

On admission, she presented the following symptoms : her skin was of a dusky, yellowish colour ; there was considerable tumefaction of the abdomen, and œdema of the thoracic parietes ; the lower extremities were much swollen, and pitted on pressure ; she had frequent dejections, accompanied with tormina ; tenderness on pressure in the epigastrium and right hypochondrium ; severe cough, with copious expectoration ; pulse 90 ; small, weak, and occasionally intermitting ; tongue whitish on the sides, smooth, red, and beefy on the middle ; sonorous râles were heard in most parts of the thorax, anteriorly ; some crepitous râle under the clavicles, and in the posterior parts of the chest ; impulse of the heart weak, its sounds are clear and loud, and heard distinctly all over the anterior parts of the chest—the second sound is accompanied with a peculiar musical bellows murmur, resembling the cooing of a pigeon, which, being somewhat similar to a variety of the sonorous râle, I thought at first it might proceed from the bronchial tubes, but on recollecting that if such were the case, it would be inaudible while respiration was suspended, I made the patient several times hold her breath, while my ear rested on the stethoscope, applied to the præcordial region, when the cooing sound continued to be heard as distinct as before.

On percussing one side of the abdomen, while the hand was applied to the other, fluctuation was distinctly perceived. When lying on her back, the anterior and lateral parts of the abdomen sounded tympanitic on percussion with the pleximeter, except the posterior parts of the lumbar regions, which yielded a dull sound ; but when she lay on one side, that part of the upper lumbar region which before sounded dull, became clear on percussion.

Such were the phenomena which our patient presented, and they continued without any very important change until her

death, which happened about three weeks after admission. Leeches were several times applied to the epigastrium, followed by blisters, with the effect of relieving considerably the pain and tenderness on pressure, in that region. Dover's powders were exhibited, combined with small quantities of calomel, and afterwards with hydrargyrum c. creta, with the effect of mitigating the tormina and diarrhœa. We afterwards augmented the quantity of Dover's powders, giving her a drachm in the course of the day, in divided doses, combined with small quantities of nitrate of potash; and, at the same time, we directed to be rubbed over the abdomen, several times a day, the ioduretted ointment of Lugal, mixed with an equal quantity of mercurial ointment. In a very short time her mouth became sore, though the salivary secretion was not much increased; the quantity of her urine was augmented, and the abdominal tumefaction diminished. The diarrhœa, however, though checked for a time, again returned; the debility increased; and the patient gradually sunk, without any reaction taking place, though carbonate of ammonia, and other diffusible stimuli were exhibited.

It is worthy of remark, that there was no considerable dyspnoea observable at any period of her illness, and that she lay very nearly in the horizontal position, without apparent inconvenience; nor did she complain much of palpitation, unless when questioned about it, when she acknowledged that she occasionally experienced it. The musical bellows murmur, accompanying the second sound of the heart, continued to be distinctly heard from the time of her admission till her decease, and was audible over most of the anterior parts of the thorax.

Dr. Benson and I examined her body the day after her death: the subcutaneous cellular tissue was remarkably yellow; a considerable quantity of serum was found in both cavities of the thorax, especially the right; the right lung was solidified, and diminished to about one-third of its original

volume, and when cut into, appeared to consist principally of a mass of immature tubercles—the intervening pulmonary texture was rather in a condensed than a hepatized state, the lung adhered extensively to the costal pleura; the left lung contained a few scattered tubercles; in other respects, its texture was healthy; about two ounces of serum were found in the pericardium. The heart was larger than natural, a considerable white patch was observed on the right ventricle, and a white patch of coagulable lymph on the septum, near the apex. The right cavities of the heart, especially the auricle, were considerably dilated, the auricular appendix very large, and the muscoli pectinati greatly developed; the auriculo ventricular valves on both sides of the heart were healthy; the left ventricle was hypertrophied; the aortic semilunar valves were thickened, contracted, were partly cartilaginous, and evidently incapable of closing the opening. Immediately above the origin of the left coronary artery, a circular opening, an inch in diameter, was observed in the parietes of the aorta; it led into a cavity about the size of a pigeon's egg, in which a layer of fibrin, of considerable tenacity, and presenting somewhat of a honeycombed surface, was observed lying loose. This cavity was found to be contained in a tumour about the size of a duck's egg, which was attached to the aorta by a cervix; about one half of this tumour was enclosed within the serous membrane of the pericardium, the other half was external. The tumour was situated behind the ascending aorta and pulmonary artery, and between the bifurcation of the bronchia in such a way as to have caused some compression on them, particularly the left; both tubes, however, were perfectly pervious, though slightly diminished in their caliber; their mucous membrane was highly injected, and their cavities filled with a gelatinous looking reddish mucus, which closely adhered to the inner surface. The walls of the tumour seemed to be a continuation of the coats of the aorta, though not so thick or resisting; on examining the edge of the opening into the sac, the internal membrane of the aorta seemed to be continu-



ous with that lining the cavity ; and on cutting through the parietes of the sac and aorta, no line of separation could be detected between the coats of both.

On dissecting the trachea from the posterior part of the tumour, and opening the sac in this direction, it was found to contain a solid mass of fibrin of almost cartilaginous firmness, which when cut into, presented the appearance of concentric laminae of a pale flesh and buff colour, alternately, somewhat resembling collared eel in structure and consistence. This mass of fibrin was about an inch in thickness, and presented a concave surface towards the aortic opening, forming the posterior and lateral boundaries of the cavity, the inner surface of which appeared to have been lined by the loose layer of fibrin we before mentioned. The ascending portion of the aorta was considerably dilated, from its origin to the giving off of the left subclavian, where it became preternaturally constricted, beyond which its cavity became again of about its natural caliber. The coats of the ascending portion were remarkably thickened, and contained numerous patches of cartilaginous and osseous deposit.

The right pulmonary artery was rendered completely impervious for more than an inch in its length, in consequence of its having been compressed between the tumour and ascending aorta, which caused its two internal surfaces to adhere together ; they were, however, easily separated, and the artery became afterwards pervious and of its natural caliber ; a large quantity of water was found in the abdominal cavity ; the peritonæum was natural in its appearance ; all the intestines were empty and distended with air ; the ascending and transverse colour remarkably contracted in its caliber ; the mucous membrane of the latter portion slightly vascular ; the liver presented a reddish chocolate colour ; the margin of the right lobe, for a small extent, felt granular ; a large white patch was observed on the convex surface of each lobe ; the gall bladder was greatly distended with bile ; the left kidney was found to contain a large yellowish tubercle ; the right kidney was healthy.

This case presented several remarkable circumstances, both during life and on the post mortem examination. The extreme complication of phenomena resulting from so many organs being simultaneously disordered, rendered the indications obscure and embarrassing. Our patient, on admission, exhibited the symptoms of intense bronchitis; she had diarrhœa evidently arising from colonitis, anasarca, with ascites, and disease of the heart and liver. The diagnosis that I ventured upon when I first saw her was, that the dropsy arose from long continued disease of the lungs and heart, that the liver was congested in consequence of the affection of the latter organ, that the cardiac affection was probably valvular disease conjoined with dilatation, and that the diarrhœa arose from inflammation of the mucous membrane of the colon. My prognosis was that the patient would not recover, and I was led to this conclusion from a consideration of the co-existence of obstinate diarrhœa with extensive dropsy. I have seen several cases of this kind, which is not uncommon among the poorer classes in Dublin, and I have invariably found them prove ultimately fatal. It appears to me that there cannot be a more unmanageable complication than that of diarrhœa with dropsy. The practitioner is precluded from the use of purgatives, and is much restricted in the employment of diuretics, as most of the more efficient medicines of this class will, in an irritable state of the intestinal mucous membrane, pass off by the bowels. What I have found most useful in such cases, is opium, generally in the form of Dover's powders, conjoined with small quantities of nitrate of potash, along with calomel or hydrargyrum c. creta. This combination will often suspend the diarrhœa for a time, and even occasionally excite some diuresis. Along with these means I have been in the habit of using the ioduretted and mercurial ointments mixed together and rubbed over the abdomen, with the view, both of exciting absorption, and also of bringing the patient more rapidly under the influence of mercury; and sometimes I apply leeches and blisters to the abdomen when any pain or tenderness on pressure exist.

Another circumstance worthy of attention in this case was, the absence of any considerable dyspnœa. When we reflect that this patient laboured under dilatation, with hypertrophy and valvular disease of the heart, ascites, hydrothorax, aneurism of the aorta, some compression of both bronchial tubes, and reduction of the volume of the right lung to one-third of its natural size, it might have been expected that any one of these diseases would have been sufficient to have caused considerable embarrassment to the respiration. Yet this was not the case, though so many of these causes co-existed ; it is not easy to assign a satisfactory reason for this, and little advantage could arise from attempting to frame an hypothesis to explain it.

The aneurism which existed in this case was of that species denominated true aneurism, or lateral partial dilatation of the aorta ; it was an exact specimen of this form of the disease as described by Hope : “ rising with an abrupt margin, its neck being narrower than the body of the sac, the internal and middle coats of the artery being traceable through the whole extent of the expansion.”\* Doctor Hope observes, “ that almost all aneurisms of the ascending portion and arch are originally of the true species ;” but, he remarks, “ that the tumour generally springs from the anterior or lateral part of the vessel, while the posterior is little, if it all, implicated.” This case afforded a remarkable exception to this rule, the aneurism having been formed on the back part of the ascending aorta. The cause of the aneurism was evidently arising from the previous diseased condition of the coats of the artery, co-existing with hypertrophy of the left ventricle. The disease could not, I think, (at least when I saw the patient,) have been detected during life. The thoracic parietes were thickened by œdema, and, of course, percussion was of little value under such circumstances. The loud sonorous râles nearly drowned every other sound which might otherwise have been audible in the chest ; and the situation of

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\* Cyclopædia of Practical Medicine, vol. i. page 105.

the tumour, so remote from the parietes of the thorax, prevented any impulse from being perceived, an effort, which, if it existed, would have been diminished by the thickening of the walls of the chest from œdema. Add to this, our patient was extremely unwieldy, from her large size and her debility, so that there was considerable difficulty in making an accurate examination of her chest. The signs, therefore, by which thoracic aneurism may occasionally be detected, were not in this case available.\* The compression of the right pulmonary artery, by the pressure of the tumour, was probably the cause, in part, of the diminution in volume of the right lung, an effect which was aided by the effusion of serum in the right cavity of the chest; this obliteration of the arterial tube was probably recent, as the adhering surfaces had not become blended together, but were easily separated without laceration.

The cause of the patient's death had, I think, little connexion with the aneurism; she apparently sunk from exhaustion in consequence of the combined effects of bronchitis and diarrhœa. The dropsical effusion was probably the result of the disease in the lungs and heart, aided by the congested state of the liver. The disease in the kidney does not appear to have been sufficiently extensive to have had much effect in producing the dropsy.

A very peculiar, and by no means common sound was heard in this case, accompanying, or rather blending itself with the second sound of the heart, which appears to me, when viewed in connexion with the state of the aortic valves, to throw some light on the cause of the second sound, a subject which is exciting at present so much interest among pathologists. This was that sound denominated the musical bellows murmur by Doctor Hope. This author conceives that this murmur may arise from

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\* For the Diagnosis of thoracic aneurism, see a valuable article by Dr. William Stokes, *Dublin Medical Journal*, vol. v. page 400; also Dr. G. Greene on the Diagnosis of Aneurism of the Thoracic Aorta, vol. vii. page 231.



the pressure of the heart during its systole, on a bronchial tube, but he acknowledges that if this explanation is true, it would be suspended or modified by holding the breath, an experiment which, he says, it never occurred to him to try;\* now we found this murmur to continue unaltered when we caused the patient to retain her breath, and we tried this several successive times with the same result. I am led, therefore, to conclude, that the sound in question had no connexion with the act of respiration. I should, however, observe, that in another part of his work, Doctor Hope remarks that one or other of the murmurs may accompany the second sound when there is regurgitation through the aortic valves,† and, as in this case, regurgitation must have existed through those valves only, (none of the other valves of the heart being diseased), and, as this peculiar sound was present, I think it appears probable that it was caused by the diseased condition of those valves, allowing a portion of blood to regurgitate through them when the aorta became distended with blood. If this inference is correct, it seems to favor the explanation of the cause of the second sound of the heart first given by Mr. Carlisle of this city, namely, “that it is produced by the elasticity of the coats of the aorta and pulmonary artery, re-acting upon the contained blood at the end of the ventricular systole, driving it, in part, towards the heart, into which its entrance is prevented by the sudden shutting of the semilunar valves, by which a shock is created which is sensible to the ear.”‡ An opinion adopted by the Dublin Committee, appointed by the British Association to investigate the sounds of the heart, as expressed in their report, where they state, that the “second sound coincides with the termination of the ventricular systole, and requires for its production the integrity of the semi-

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\* Hope on Disease of the Heart, page 338, first edition.

† Hope, page 340.

‡ Carlisle on the Motions and Sounds of the Heart, Dublin Journal, vol. iv. page 106.

lunar valves of the aorta and pulmonary artery, and seems to be caused by the sudden check given by the action of these valves to the motion of the columns of blood driven towards the heart, after each ventricular systole by the elasticity of the arterial trunks.”\* It appears to me that a careful consideration of the facts which morbid anatomy discloses, might throw considerable light on the causes of the sounds of the heart in a healthy state ; and, though I by no means think that any certain conclusion ought to be deduced on this point from the phenomena presented by a single case, yet, the circumstance seemed to me worthy of observation, for if in a number of cases of cardiac disease, where a peculiar modification of one or other of the sounds of the heart is detected during life, and organic disease discovered after death, we find a certain lesion very generally accompanying the same sound ; it seems to lead to the conclusion that the normal sound is more or less dependent on the action of that portion of the cardiac apparatus, which when diseased caused the sound to become altered from its natural tone. I have to beg the indulgence of the Society for the very imperfect manner in which I have brought this case before them ; the facts, however, connected with it are interesting, and I am induced to submit to the attention of the Society, with the hope of eliciting further information on the subject.

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\* Dublin Journal, vol. viii. page 160.

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### *On Latent Life, and on Vital Crystallization.*

CONSIDERATIONS SUGGESTED BY SOME PASSAGES IN THE WRITINGS  
OF CARUS AND OF TREVIRANUS. BY DR. GRAVES.

CARUS, so well known by his works on anatomy and physiology, has made some observations on latent life,\* that appear deserving of attention, and have suggested to me the following reflections:—

An accurate observation of physical phenomena has led to the universal adoption of the hypothesis that the most active principles which operate on the material world, may exist in a dormant state denominated latent. Thus we speak, for instance, of latent heat; Carus is of opinion that life may be placed in a similar condition, and certainly in the seeds of plants it continues in a quiescent state that almost justifies the analogy. Here the germ is already impregnated, and the matter forming the seed contains, encased within its envelopes, a something which exhibits however no evidence of its existence, until that matter is exposed to the effects produced by certain physical agents, heat, moisture, air, &c.; then, indeed, the quiescent principle immediately asserts its empire, and every subsequent change, which the matter forming the seed is henceforward destined to go<sup>on</sup>, is evidently dependent on vital influence. That the power<sup>of</sup> of germination may be retained for a great length of time, is proved by numerous facts, many of which are mentioned by Decandolle, in his *Physiologie Végétale*. Thus it is more than sixty years since a bag of seeds of the sensitive plant was brought to the *Jardin de Paris*, and it is found that they still grow when sown. Pliny mentions that wheat 100 years old has germinated; and Horne had an opportunity of trying the experiment with wheat 140 years old, which grew very well;

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\* Müller's Archiv. Heft. vi. 1834.

Gerardin took the seeds of French beans, preserved in their pods in Tournefort's *Hortus Siccus*, and consequently 100 years old at least, and found that their power of germination was unimpaired. These facts are sufficient to warrant the conclusion, that the period during which the seeds of plants are capable of preserving the power of germination, might be indefinitely prolonged, provided that the physical influences to which they are exposed be favourable, and we are consequently led to reflect on a singular and marked difference between latent and manifest life; the former may exist on, I had almost said for ever; the latter, once commenced, has its appointed end and termination. Thus the curious fact has been observed of a bulbous root taken from the hand of an Egyptian mummy, having germinated when placed in the soil; how happened it that this bulb remained for several thousand years in contact with the fingers of death, without its own vital principle being either extinguished or called into active operation? What power at once preserved that principle, and held it in abeyance? And yet so it was, and age after age passed away without summoning into action that wondrous spell, which can thus convert this long-enduring tenant of the tomb, into the *lily of the field*, the scriptural emblem of beauty, and the honoured type of the glories of vegetable life, beside the purity and brightness of whose hues, even the raiment of Solomon appeared dull and faded. If the latent principle may thus co-exist, combined with matter during so many centuries, there can be no reason why this association of that which *is*, and that which *is to be*, should not continue for ever, provided the physical medium in which this organized mass happened to be placed, was calculated like the cool, dry, dark air of the Egyptian Sarcophagus to preserve its mysterious inhabitant unawakened, uninjured! In this point of view we may almost award to life the attribute of eternity. How wonderful the arrangement of matter which can thus hold, incarcerated in its organized recesses, a principle that waits but the genial influence of heat and moisture to burst its prison. How fleeting the existence of life once actually commenced, compared with the durability of life thus dormant, but ever ready to begin its mortal race? But here the question arises, can the ova of animals be preserved like the seeds of plants; can their latent vitality resist the lapse of ages; can they, too, lay claim to so wonderful a power? There is reason to believe this not impossible, even with regard to the ova of vertebrated animals, for it is recorded that under peculiar circumstances hen-eggs have been kept for weeks, months, or even years, before being hatched. Nature has, indeed, intended that in the



ova of most animals, the epoch of impregnation should precede but by a brief period that of incubation whether performed in the body, or out of the body of the parent; and consequently the apparatus of protection, the matter containing and united to the latent principle of life, is not calculated to endure, like that of seeds, unchanged; on the contrary the physical influences to which its material arrangement is usually exposed, are of a nature fitted either at once to destroy, or at once to force it into manifest life; but were it otherwise, it is more than probable that the latent vitality of the animal germ is not inferior in longevity to that of plants. The most remarkable instances of life preserved in a latent state, are exhibited by certain infusory animalcules, as the *Macrobiotus Hufelandi*, which Schulze preserved for many years dried into the form of an atom of dust and surrounded with a little dry sand; this desiccated little being, so long inanimate to all appearance, immediately revived when placed in a drop of water. Leeuwenhoek's experiments on the revival of dried *wheel animals* are equally curious; but it is needless to multiply examples of latent life in infusory animals, when obvious instances may be found in other classes. Thus what more remarkable instance of long suspended <sup>duration</sup> ~~duration~~, or of latent life, than that recorded by the celebrated Dr. Mac Bride of Dublin, who having one day opened a chest in his museum, for the purpose of *washing in warm water* some snailshells it contained, was called away for a time, and on his return found the animals creeping about on the sides of the vessel; these shells had certainly been in the collection nearly forty years! Many stories, some probably unfounded, have been from time to time related, concerning toads imbedded in wood or in rocks. Doctor Edwards relates several experiments performed in France, in which these animals were imprisoned in plaster of Paris, and were, after many years, still alive when the plaster was broken. At the last meeting of the British Association, Mr. Sturge of Birmingham, read a highly interesting paper on the recent discovery of a toad, in sand-stone rock, in Park Gardens, Coventry. The sandstone was tolerably porous, but quite free from damp from which the animal could derive nutriment, or any fissure by which it could draw air for respiration. In fact it must, as was remarked, have been hermetically sealed up in a state of torpor, or of *latent vitality*. How long the animal had been so situated it is impossible to determine, but certainly it had been there for ages, and there can be little doubt that its latent vitality might have continued for ages longer. Humboldt relates that in some of the immense tracts of country exposed to the annual inundations of the great American rivers, the swamps and marshes are teeming with

life for a long time after the waters of the river have retired. As the dry season continues, however, many animals desert the more arid plains, while others, among the rest various species of reptiles, remain in the desiccated and hardened mud, awaiting in a state of torpor another overflowing of the river ; when this takes place, they revive, and the moistened mud seems to give birth to animals. It is probable that the observation of facts similar to this in the neighbourhood of the Nile, or of some Asiatic river, originated the generally received opinion of the ancients, that slime and mud are capable of giving birth to broods of noxious reptiles, by an act of equivocal generation. The question of equivocal generation presents, as is well known, many difficulties incapable of being solved, without a knowledge of the important part performed by latent vitality ; for without admitting that the ova of vast numbers of infusory animalcules, and the germs of many of the cryptogamic class of vegetables, are capable of preserving their vitality for an indefinite period when dried, we could not explain the almost universal appearance of these organized beings in every situation favourable to their development, the moment that animal or vegetable matter, mixed with water, undergoes a certain degree of decomposition. To conclude, the hybernation of certain of the mammalia, and the apparently lifeless state of torpor produced by cold, or by incomplete asphyxia, and, in fine, the almost suspended animation observed in the trances of hysterical females, are all, more or less, connected with the subject of latent vitality.

I have dwelt upon the most obvious and interesting considerations connected with the subject of latent vitality, without following *Carus* in his ingenious, but speculative and fanciful, notions concerning the latent vitality of certain diseases, and concerning the more extensive signification he attaches to the idea of life ; a term he would apply to many of those powers which act on matter, and gives rise to various modifications of its form and properties, such as crystallization, chemical attraction, &c. Without at all assenting to the analogy *Carus* seeks to establish between the causes of living motions, and those producing crystallization, I may remark that a wide and interesting field of inquiry has been lately opened in the discovery that the internal skeletons of many of the *Poriphera* consist of numerous spiculæ, in some species siliceous, in others calcareous. Now Professor Grant has shewn in his *Outlines of Comparative Anatomy*, that these spiculæ have in each animal a distinct form serving to characterize them. He asserts that the form of these crystals, whether they consist of silex or of carbonate of lime, is always constant in the same species, and he gives delineations

of ten different forms of siliceous spiculæ, each belonging to a separate species; some of these spiculæ have all the appearance of mere crystals, and their formation can be readily referred to the operation of the causes which preside over the arrangement and juxta-position of the particles of matter in siliceous crystals that occur in rocks, and in unorganized matter. But there are other forms of curved siliceous spiculæ represented by Doctor Grant, and to which no analogies, I believe, exist among siliceous crystals, whose formation has resulted from the common laws of crystallization connected with vitality. This is in truth a very curious and very interesting subject, for if it should appear that living bodies contain a group of siliceous or calceous crystals, arranged in forms not occurring in crystals formed beyond the influence of vitality; if this be the case, I say, shall we not be justified in concluding that whatever be the nature of the forces which preside over crystallization, these forces may be generated *as functions of living bodies*, and they may, when generated by the living organs, undergo modifications, such as do not occur in unorganized matter. In fact we may almost anticipate the division of crystals into two groups, one formed by and obeying the laws that preside over inanimate matter, the other resulting from influences originating in, and generated by the living principle, and in which, perhaps, there may be found crystals oftentimes similar to those of the former class, sometimes different. Here is a new point of contact between the kingdoms of animated and dead matter, a new set of facts indicating an analogy between the forces which preside over both; whether *electricity* in its multiplied modes of action, be not the chief agent, is a subject of curious, but probably, unproductive investigation. This matter of vital crystallization becomes of importance, not merely on account of its abstract philosophical interest, but on account of the richness and variety of the products eliminated in the animal laboratory; in human bones and teeth we have the phosphate of lime, as Breschet has shewn, not merely amorphous, but crystallized. As yet, however, no investigations have been made to ascertain whether the crystallized principles that enter into the structures of the higher animals assume forms peculiar to themselves. I may take this opportunity of remarking, that Mr. Coldstream, in his excellent article on the *Acalephæ*, published in the *Cyclopædia of Anatomy and Physiology*, although he refers to Professor Ehrenberg's recent discoveries relative to the supposed eyes of the *medusa aurita*, has omitted mentioning the actual discovery by that naturalist of crystals composed of the carbonate of lime, and which lie enclosed in a little vesicle or bag connected with each organ of vision. However problematical the hypothesis of



Ehrenberg in considering the minute red points as eyes, there can be no doubt as to the existence of calcareous crystals, which, according to him, possess a great variety of forms, some tabular, some circular, and some pyramidal. The formation of crystals under the influence of vegetable life, presents another fertile field of investigation.

The best account of the researches hitherto made on this subject, is found in *Treviranus*, *Physiologie der Gewächse*, published in 1835, and *Raspail*, *Nouveau Systeme de Chemie Organique*, 1833. Crystals occur very abundantly in the substance of many living vegetables, sometimes in the form of spiculæ within the cells and adhering to their parietes, and sometimes in the intercellular spaces; in the latter situation they are deposited only on plants belonging to the tribe of orchideæ, such as cypripedium, insigne, and neottia discolor. The crystals consist usually of phosphate of lime, as in the genera narcissus, hyacinthus, orchis, ornithogalum, phytolacca, &c., or of sulphate of lime, as in many of the *Leguminosæ*. Oxalate of lime crystals occur in the bulbs of the iris florentina, in the leaves of rhubarb, and in the cactus Peruvianus. In some plants these crystals are so abundant in the tissues of the leaves, that they must there discharge an important office, analagous to that performed by the siliceous spiculæ of sponges. Raspail remarks that we cannot obtain oxalate of lime in crystals by the processes usually employed in our laboratories, while the same substance is frequently found crystallized in plants, whose living tissues seem thus capable of exerting an influence we cannot imitate, and which he is inclined to attribute to an electric agency, a view supported by the experiments of Becquerel, who succeeded in producing, by the application of electro dynamic forces, the crystallization of substances which could not be procured in the crystalline form by any other method.

To conclude, this subject appears to deserve more attention than has hitherto been bestowed on it, particularly with reference to the forms which siliceous and saline substances assume in the tissues of plants and animals, as compared with the forms of the same substances when they occur as unorganized matter. If, for instance, a substance capable of assuming so many distinct secondary forms of crystallization, as carbonate of lime, always occurs in a certain animal tissue in the same form, we must then attribute to that tissue powers capable of modifying the crystallization of that substance, and must acknowledge a new link connecting the phenomena of life with some of the more subtile agencies that influence matter.

Having been led in the course of the foregoing observations



to speak of the evident connexion existing between life and electricity, it may not be misplaced to remark that the experiments of Pouillet on the development of electricity, when fluids are converted into vapour, or when they exhale gases, render it not unreasonable to suppose that the function of respiration must be closely connected with the production of electrical changes in the blood, an hypothesis apparently supported by the instantaneous uneasiness felt the moment that breathing is interrupted. Were our means of investigation adequate to the inquiry, it would, perhaps, be found that the symptoms of asphyxia are, in part, at least, the result of a derangement in the electrical operations performed by the lungs.

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WEBER *on the Pulse ; on the Dilatation of the Heart ; and on the Use of the Cochlea in the Organ of Hearing.*

ANALYSIS AND OBSERVATIONS BY DR. GRAVES.

PROFESSOR WEBER's well known learning and deserved celebrity must insure his opinions much respect on all physiological subjects, and must render an analysis of them acceptable to the English reader, particularly when, as in the present instance, at variance with those generally received in this country. In this analysis of *his* chapter on the pulse, it will be seen, that I, myself, too, have been led to adopt views different from those promulgated by Elliotson and Arnott, a circumstance which at first startled me not a little ; for finding myself in opposition to such great authorities, I could not but feel distrustful of the truth of my own conclusions. As, however, my views have been approved of by some friends, on whose judgment I place great reliance, and as the subject is one evidently open for discussion, I have thought it right to append my conclusions to those of Professor Weber.

In the first chapter he relates a number of observations proving what is indeed now generally admitted by physiologists, that the pulse in arteries near the heart, precedes by a short but perceptible interval, the arterial pulsations in the remote and smaller vessels ; thus although no difference can be detected between the beats of the axillary, and the external maxillary arteries, yet a very notable interval, about the seventh part of a second, elapses between the stroke of the axillary and that of the metatarsal artery. Weber's explanation of this phenomena is precisely the same that I have for several years given in my lectures, and as it in some respects differs from the

opinion generally entertained upon this important subject, I have thought it well to subjoin a literal translation of the whole passage :

“ The pulse consists in a sudden dilatation of the arteries, (*extensio arteriarum*,) caused by the pressure of the contained blood. *This pressure is produced when a fresh quantity of blood is impelled from the heart into the arteries already full of this fluid.* The reason is obvious, for the blood previously in the arteries cannot flow onwards through their capillary and venous terminations, so rapidly as the blood impelled by the left ventricle into the aorta enters the arterial system ; the consequence is that the contained offers a certain degree of resistance to the entering blood. Now every fluid exposed to a pressure from behind, re-acts on the surrounding parts, not merely in the line of direction of that pressure, but on every side ; and, therefore, at each contraction of the ventricle, the blood the arteries contain, re-acts in consequence of the impulse pressure of the injected blood, not merely longitudinally but laterally, the arteries being fixed at both extremities.”

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“ Thus it is, that although the blood does not flow out of the arterial system with as great velocity as it flows into it, yet room is made in that system for the momentary excess, an excess which is gotten rid of before the next stroke of the ventricle, by means of a continuous flow of blood through the arterial extremities into the venous and other portions of the vascular system. The case would be very different were the blood contained in unyielding tubes, whose parietes would not admit of extension in any direction, for then the impulse or stroke of the heart's blood against the arterial blood would be propagated throughout the whole extent of the arterial system with the same velocity that sound travels in blood, a rate much more rapid than that of sound through air. It is evident that a propagation of pressure so rapid, could not be perceived to occupy any time in passing from the heart to the arterial extremities, and consequently were the blood contained in unyielding tubes, its onward motion simultaneous, even in the extreme vessels, with the application of the pressure derived from the impulse of the heart's blood, would be the only motion observed. But as the arteries of the human body easily admit of extension in the direction of their longitudinal, and less easily in the direction of their transverse diameter, it follows that they must yield to this pressure in such a way that the arteries nearest the heart are, in virtue of their elasticity, first dilated and lengthened by the impelled blood, upon which, however, they constantly contract, and so induce a distention of the next portion of the arterial system, a distention propagated with great rapidity onwards, until, like a wave, it reaches the extreme vessels.”

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“ We may now understand the extent of Bichat's error when

he confounded this wave-like motion of the arterial blood with its mere onward motion, and argued that as the arteries are always full, the pulse must depend, not upon an advancing wave, but upon a percussion or impulse communicated at the same instant to all the blood in the arterial tubes. There is a vast difference, however, between a wave-like motion in the particles of a fluid, and an onward or flowing motion; a wave depends upon an oscillation, not a progression of the fluid, and hence light bodies swimming on its surface are raised upwards by the wave; but when it has passed, they are found to be precisely in the place they occupied before its arrival. Bichat was right in attributing the pulse to an impulse communicated to the blood in the arteries; he was wrong in thinking it arose from a pressure acting simultaneously upon the whole of that blood, for we have seen that the pulse is caused by a pressure so re-acting on the distensible parietes of the arteries, that the pulse travels along like a wave."

Weber, after some other remarks, observes that the force to which waves in water owe their origin, is gravity, or in other words, the weight of the fluid, whereas the arterial wave causing the pulse, arises from the elasticity and vital contractility of the arterial tunics. The more rapidly these tunics yield, in the first instance, to the increased quantity of fluid thrown in by the left ventricle, and the more rapidly they afterwards recover their former dimensions by contracting in their contents, the more speedy will be the progress of this wave. There can, indeed, be little doubt that this wave, whose propagation depends, not only on the force of the heart, but on the vital powers of the arteries, must travel at different rates in different persons; or in other words, that an interval of time must elapse between the pulsation of the arteries near the heart, and that of the more distant arteries, greater in some persons than in others. As an examination of the arterial tunics proves that their fibres can be stretched much more easily in the direction of the arteries longitudinal, than of its transverse diameter, it is evident that, considering the whole arterial system as one tube, into which, being already full, each systole of the heart forces a certain quantity of blood, this tube will yield most in the direction in which it is most extensible, or in other words, will make room for the superadded blood chiefly by elongating itself, partly by increasing its calibre. Hence it follows that each systole of the left ventricle causes a smaller degree of transverse dilatation in the arterial tree, than would have occurred could the additional room have been gained only by an augmentation of its transverse diameter. Indeed this dilatation, although real, is so slight that it has escaped the notice of many experimenters; all, however, are agreed as to the increase in the length of the ar-



tery which occurs at the moment of the pulse. Weber's concluding observations on this subject are worthy of notice :

“ Bichat erred in saying that the blood driven by the heart into the arteries, tends to straighten these vessels, and that the more, the more flexuous they are. We have just seen that every artery is lengthened at the moment of the pulse, and consequently those which were straight, *but fixed at both ends*, must become at that moment somewhat curved, while those that were flexuous will of course become more so. Thus, take the carotid, fixed at one extremity on the arch of the aorta, at the other in the bony *canalis caroticus*, it is obvious that when elongated by the new blood derived from the ventricular systole, this artery must become more curved, a truth confirmed by observation. This is the reason why in injected subjects the vessels distended with wax are always found to be more curved and flexuous than the vessels of an uninjected body, it being chiefly by an elongation of their longitudinal fibres that room has been made for a large quantity of wax. When the additional pressure caused by the influx of superadded blood is removed, the artery contracts both longitudinally and transversely ; but as the former contraction is much more considerable than the former, it is obviously more efficient in propelling the blood onwards towards the veins. To conclude, says Weber, ut nunc quid pulsus sit, paucis verbis comprehendam, hæc addo, pulsus est effectus oscillationis propagatæ, quæ in membranis et sanguine arteriarum plenarum locum habet, originem vero a pressione sanguinis a corde propulsi ducit.”

I have been thus minute in giving Weber's explanation of the pulse, because it appears much more complete and satisfactory than that of many physiologists : he very properly dwells on the fact, that two motions in the blood are caused by each ventricular systole, viz. a progressive motion and a wave-like motion ; the former is so obvious that it has escaped the notice of none, and Dr. Elliotson, in his last edition of *Human Physiology*, a book of great learning and research, has clearly demonstrated, “ That one great office of the contractile powers of arteries is to enable these vessels to accommodate themselves to the quantity of the contained blood, so as to impart to the arterial canal such properties of a rigid tube as enable an impulse at the mouth of the aorta to be instantly communicated throughout the canal.”—(p. 186.)

Strange to say, however, Dr. Elliotson, although he allows that the arteries lengthen and become tortuous at each stroke of the heart when the pulse is felt, yet denies the existence of any lateral dilatation in these vessels during the systole of the ventricle ; he does not attempt to explain on what principle



of statics, pressure imparted to a fluid contained in a tube extensible both in its transverse and longitudinal diameter, can possibly act so as to increase the longitudinal dimensions of that tube, while the transverse dimensions remain unaltered! Dr. Elliotson has adopted the opinion of Sir David Barry, that the pulse is only felt when arteries are more or less compressed. Now, as Dr. Elliotson supposes but one motion, an onward motion of the blood taking place simultaneously in all the arteries, which he considers in the light of rigid tubes, and as he believes that the pulse only occurs at the moment when arteries are more or less compressed, it follows from his own premises, that when the compressing force of the fingers, for instance, is applied simultaneously to the carotid, and to the metatarsal arteries, the pulse should occur simultaneously in both; but it does not do so, and therefore Dr. Elliotson's hypothesis is untenable. There is here no means of explaining away the discordance between the fact observed, and the fact which ought to be observed according to Dr. Elliotson's reasoning. As to the conclusions of Sir David Barry on this subject, they do not appear tenable. The opinion of one other author requires some observation, I mean Dr. Arnott, to whose reasoning on every thing connected with the physics of physiology so much importance is deservedly attached. Dr. Arnott treats this question with great ability, vol. i. pp. 450, 51, 52, and sequent; fifth edition of *Elements of Physics*. At page 594 he says,

"At each jet of blood thrown into the aorta, a tumefaction or wave must spread from the heart to the extremities, for it is evident that if blood be at all pushed into the arterial system, it either must dilate it, or cause an equal quantity to be expelled at the same instant from the distant extremities; now, as the passage of blood through the capillaries appears perfectly uniform, there must be an intermediate dilatation. Dr. Parry and others should not have denied this dilatation, because they had never seen it, for even if its advancing front were more considerable than it is, it passes with such velocity, that, like a cannon ball crossing before the face, it could not easily be perceived."

Now, with all due deference to so high an authority, I must beg leave to observe that the rate at which the pulse travels is comparatively slow, for we have seen that the pulsation of the carotid precedes that of the metatarsal artery by the sixth or seventh of a second; now, counting the distance between the two points at five feet, we ascertain that the rate at which the pulse travels along the arteries does not exceed thirty or at most forty feet in a second, whereas a cannon ball has a velocity of from 1500 to 1700 feet a second! To conclude, although Dr. Arnott has evidently miscalculated the velocity of the pulse, he is

right when he concludes (p. 596,) "that the cause of the sensation then cannot be the simple forward rush without tumefaction described by Dr. Young and Dr. Parry."

Dr. Arnott very properly takes into account other causes as connected with the formation of the pulse, *e. g.* a certain locomotion in the artery, as suggested by Bichat, and which is often sensible to the finger applied; another cause on which he dwells more is thus explained—

"That a tangible shock is conveyed through a fluid without any apparent accumulation of the fluid or change of velocity, and much in the manner of sound, is proved by the facts that we may discover the working of a water-pump at very great distances, through iron pipes connected with it, and even through elastic pipes of leather, as those of a common fire-engine, from which the water is spouting, nevertheless, in a uniform strain. *The pulse in a tied artery in which there is no current or rushing wave, must be chiefly from this cause and from the locomotion of the artery.*"

That this shock has anything to do with the pulse is sufficiently refuted by their different rates of travelling, the pulse occupying a very perceptible space of time in traversing the distance between the heart and the distant arteries, whereas the shock Doctor Arnott here speaks of, spreads through a fluid with the same velocity that sound traverses the same medium. There is no getting over this objection, the full force of which appears, when we recollect that sound traverses a fluid at the rate of 4708 feet in a second, as ascertained by the experiments of Colladon in the lake of Geneva, the result of which agrees very remarkably with that given by theory. As to the assertion of Doctor Arnott, that in a tied artery there is no current or rushing wave, although there is a pulse, it appears unfounded, for at the moment an additional quantity of blood is driven by heart's systole in the pervious arteries, an additional quantity is likewise forced into the tied artery, whose parietes by yielding, increase the capacity of the artery in every direction, and give rise to the phenomenon of the arterial wave as already explained; but there is this difference in the case of the tied artery, that the superadded blood is regurgitated when the arterial tunics contract, instead of being driven forward through the capillaries. On the wave hypothesis, and on that alone, can the existence of a pulse, in a tied artery, be explained. Having adopted conclusions, somewhat at variance with those of Doctor Arnott, I may be permitted to observe, that I feel in the strongest manner the danger of differing from so high an authority, particularly on such a subject as the circulation; a sub-

ject which he has advanced so materially, by disencumbering it of the theories of Barry and of Carson, which, I regret to say, still occupy a useless space in the pages of Doctor Elliotson. Let any one read Doctor Arnott's remarks upon those two theories, and he will justly feel astonishment at their having received the assent of so many, when first promulgated. I take some credit to myself, for having demonstrated to my class the fundamental errors of Sir David Barry's theory, long before the publication of Doctor Arnott's work, and at a time when it was made an object of grave inquiry by a select committee of French physiologists.

*On the Dilatation of the Heart.*—Bichat revived the opinion of Pechlin, that the diastole as well as the systole of the heart, is accomplished by means of muscular exertion. In proof of this assertion, he appeals to the sensation imparted to the hand, by a still moving heart, if grasped at the moment the diastole is affected; for, says he, it will be felt to expand itself with considerable force. This assertion of Bichat has, says Weber, deceived many, and is a remarkable instance of how easily we are led into error, unless we cautiously weigh all the circumstances connected with physiological experiments. It is true that the hand which grasps a living heart is pressed, but it is not true that this pressure is caused by the heart during the diastole of its ventricles. In living animals while the ventricles are relaxed and flaccid they are larger, being filled at that moment with blood, and while they are in a state of muscular contraction, they are also of smaller dimensions, inasmuch as the blood has been thereby expelled from their cavities. But matters are quite altered when, as in the case of a pulsating excised heart, no blood is either received into or expelled from the ventricles, for then their muscles, like all muscles of a similar form, swell notably during contraction. The heart is rendered shorter, reckoning from its apex to its base by the ventricular systole, but its circumference embracing both ventricles is increased. The same thing happens in the case of other muscles: grasp the biceps on the arm, and it will be found to press, so as to tend to open the hand during its contraction. In Bichat's experiment, therefore, it is plain that the heart presses the hand, not at the moment of the ventricular diastole, but of the ventricular systole. This error, into which Bichat led Richerand and Magendie, was refuted, first by Adelon, and finally completely exposed by the experiments of Oesterreicher. (*Lehre vom Kreislaufe des Blutes*, 1826). He observes—

“ We may easily convince ourselves of the fallacy of this opinion



if we place a small heavy body on the heart of a frog, so adjusting its weight and size, that while it compresses considerably that organ, it should not conceal it from our view; a small piece of lead answers this purpose best. Now in the excised heart the systole occupies a much shorter time than the diastole, and consequently if the latter were capable of producing an active expansion of the heart, the bit of lead ought to be raised perpendicularly upwards, during a much longer period than is actually the case; for its motion in this direction is sudden and quite momentary, just as when the hand grasps the heart, its pressure is felt to be extremely short."

I have thought it well to give this remark of Oesterreicher, because it is directly at variance with the assertion of Doctor Corrigan, that in the frog the impulse of the heart is during the diastole. It will be remembered that this able experimenter exhibited the beating heart of a living frog before the Medical Section of the British Association last August, and that the members then present thought it evident that the ventricle is raised and pushed forward during the diastole.—(See Report of the Medical Section of the British Association, Dublin Medical Journal, vol. viii. p. 167.)

I may remark that the result of Bichat's experiment in the hearts of mammalia, entirely depends on the way in which we grasp the heart. If our fingers surround it transversely it will appear to expand during the ventricular systole; if, on the contrary, the fingers are extended in lines from the apex to the base, the heart will be felt to shorten in this direction during the systole of the ventricles.

*On the Use of the Cochlea in the Organ of Hearing.*—Weber has discussed this interesting question at some length, and I have thought it useful to give a literal translation of all his remarks, inasmuch as this subject has not been treated in a satisfactory manner by any English author whose works I have read. Doctor Arnott, for instance, makes no attempt at an explanation of the difference between the functions of the semi-circular canals, and of the cochlea; his only remark is that "the separate uses of these parts are not yet perfectly known." *Professor Quain*, in his admirable *Elements of Anatomy*, a work abounding in deep physiological research, does not even allude to any difference of function between the different portions of the labyrinth. Such being the case, Weber's opinion on this important subject will, no doubt, prove most acceptable to English physiologists:

"And first it is evident that the propagation of sound to the internal ear, takes place not merely through the *meatus auditorius*



*externus*, but also through the *bones of the cranium*; by the former we receive notice of sounds from without, by the latter, we more readily hear our own voice. The vibrations produced by our own voice are indeed also heard by the route of the external ear, but they are conveyed with greater distinctness through the medium of the bones of the skull. Thus, if you stop both ears firmly with the fingers, so far is your voice from being rendered inaudible, that you hear it more distinctly and louder than before. If now we remove the finger from one ear, immediately we find that the sound of our voice appears stronger in the other. *I shall now endeavour to prove that sounds propagated by and conveyed through the bones of the head, are heard chiefly by means of the cochlea, whereas sounds coming from without by way of the meatus auditorius externus, are not so readily received by the cochlea, as by the route of the vestibule and the semicircular canals.* In truth it is at once evident, that with respect to sound depending, as it always must, on vibrations communicated to the percipient nerve, it cannot be a matter of indifference in what manner that nerve is arranged for the reception of these vibrations: it cannot be a matter of indifference whether it receives them from a solid or from a fluid. I shall however, demonstrate, that in almost all animals, these vibrations are communicated to the extremities of the acoustic nerve by the two-fold means of a vibrating solid and a vibrating fluid, *and that in man the cochlea constitutes the part of the organ of hearing which is destined to place the nervous extremities in communication with a vibrating solid, whereas the semicircular canals place them in contact with a vibrating fluid.* The utility of this provision is not perhaps intelligible in the present state of our knowledge, but we have reason to conclude such a provision to be necessary, finding it so generally adopted in so great a number of animals. It is ascertained that sounds propagated through an uniform medium, whether fluid or solid, lose but little of their force, whereas they lose much in passing from a solid to a fluid, or *vice versâ*. Experience shows that in the shafts of mines, the stroke of a hammer in a neighbouring shaft is very audible when that stroke is made on the solid rock, and it is still more distinctly heard when the ear is placed in contact with the rock, whereas the voices of the miners in that neighbouring shaft are never heard. Sounds, too, are transmitted through water with the greatest celerity and distinctness, and may be heard at great distances when the head is under water, but they become inaudible the moment the head emerges above its surface. What an obstacle to the propagation of sound even a thin stratum of a different medium presents, is rendered evident by the diminished loudness of the noises in the street, when by drawing up the window we intersect the path of the ærial propagation of sound by means of thin panes of glass.

“Experience, too, proves that solid bodies communicate their vibrations to fluids, with a facility proportioned to their extent of surface, and that solids receive vibrations from æriform media more easily when the solid is shaped in the form of a membrane. A

tense cord does not easily communicate its vibrations to the air unless it be fixed to some flat body, which being of a like nature solid, receives the vibrations of the string without difficulty or loss, and propagates them to the air through the medium of its own extensive surface. It is an observation of these phenomena which has led to the adoption of sounding boards in those musical instruments, when the vibrations causing sound proceed from strings, as in case of the violin, the piano, and the harp, whereas sounding boards are not required in the various species of wind instruments. The reason of this difference is sufficiently obvious, in the one case a solid with an extensive surface must be brought into connexion with the vibrating string in order to diffuse its vibrations more energetically through the air, whereas in wind instruments, the vibrations being derived from the air itself, no such provision is necessary."

These laws by which sound proceeds with such facility through the same, and is weakened by passing into another medium, and the laws which regulate its transmission through air, solids and fluids, all tend to confirm the conclusion, that the vibrations conveyed through the bones of the head, are chiefly heard by means of the cochlea. For if the sonorous vibrations pass, as we have proved they do, from the air in the mouth to the internal ear, through the medium of the bones of the cranium, they will act no doubt on that portion of the internal organ of hearing which is nearest, and which possesses such an arrangement of the extremities of the auditory nerve as places these extremities in contact with the bone, itself a portion of the osseous communication between the mouth and the internal ear. That part is the cochlea, for the cochlea and the nervous expansion which adheres to its walls are intimately connected by means of its osseous parietes with the other bones of the cranium. These vibrations proceeding from the air within the mouth, cannot be transmitted with similar ease to the auditory nerve where it is distributed throughout the vestibule and the semi-circular canals, for here nature has separated designedly the nervous expansion from the bony parietes.

Weber is very strong and very distinct on this important anatomical distinction between the relation the nervous expansion of the auditory nerve bears to the bone in the cochlea, as compared with what obtains in the semi-circular canals. The cochlea exhibits its bony parietes and septa in a state of intimate adhesion with the auditory nerve, whereas in the semi-circular canals nature has studiously separated the bony parietes from the contained tubular and sacculated expansion of the auditory nerve, either by means of a liquid secretion, or of a loose cellular membrane.

This manifest anatomical difference is well described by Scarpa, and is tersely but clearly given by Quain, who speaking of the cochlea says, "that the nervous filaments pierced by minute power to the scalæ, upon the entire surface of which they form a delicate expansion, *supported by the osseous and the membranous part of the septum.*"

Whereas all concur in stating that nothing like this direct contact and intimate adhesion between the osseous parietes and the enveloped nervous expansion, exists in the vestibule and the semicircular canals.

"The preceding observations," concludes Weber, "render it sufficiently apparent, that the membranaceous vestibule and membranaceous semicircular canals, differ in structure from the osseous vestibule and the osseous semicircular canals, in such a manner, that vibrations travel through the bones of the cranium with more facility to the cochlea and round sac, than they do to the membranaceous portions of the internal ear.

"The next question is, whether the sonorous vibrations that are derived from the external air and proceed through the meatus externus to the ear, are propagated with greater facility and strength to the nerve of the vestibule than to the nerve of the cochlea. In the first place, it is evident that the vestibule and the semicircular canals directly connected with it, must receive a stronger impulse from the aerial vibrations than the cochlea, for the former have a solid communication by means of the chain of ossicula with the membrana tympani, whose vibrations are consequently imparted at once to the membrane of the fenestra ovalis, whereas no such direct communication exists between the membrana tympani, and the fenestra rotunda. The membranes of the semicircular canals and the vestibule too, seem to be more easily set in motion by the fluid which invests and surrounds them, than is the case with the lamina spiralis of the cochlea. The latter is, nevertheless, furnished with provisions calculated to enable it to receive impulses from the external air also; for the fenestra rotunda, being closed by a membrane, must impart the vibrations that occur in the cavity of the tympanum, while another opening, by forming a communication with the vestibule itself, must place the cochlea in connexion with the latter, in such a manner that the vibrations which the chain of ossicula have imparted to the fluid of the vestibule, must through that fluid be at once propagated to the cochlea.

"I have next to prove the assertion which I made at the commencement, viz. that nature has so constructed the ear in man, and various other animals, as to make a provision for the reception of the sonorous vibrations in a two-fold manner, by means of the acoustic nerve, which is so disposed in the internal ear as to present, for receiving these vibrations, a double surface of contact; the one consisting of a soft, pultaceous, nervous expansion, surrounded by a fluid, the other formed of a reticulated net-work of extremely



minute, but firm, nervous, ramifications. The former receive the sonorous vibrations through the medium of a fluid, the latter of a solid. In man the cochlea is the portion of the organ where the firmer extremities of the acoustic nerve are disposed for this purpose. Fishes and amphibious animals have no cochlea, but they have an arrangement which answers the same purpose; for in osseous fishes, we find that the membranaceous labyrinth contains three white little stony bodies, of great specific gravity, very hard, and much resembling vitrified argillaceous clay; two of these are enclosed with a sac full of fluid, adjoining the vestibule, and lodged in the basilar portion of the occipital bone; these lapilli are furnished with fine nervous filaments, fastened to rough depressions and elevations on their surface; thus vibrations are imparted from the lapilli to the acoustic nerves; the third lapillus is situated in the anterior portion of the membranaceous vestibule, and receives no nervous filaments. It has, however, another mode of communicating with the acoustic nerve, for it lies against a very large branch of that nerve where it expands on the membrane of the vestibule, and thus compresses this nerve between itself and the cranium. In cartilaginous fishes and in amphibious animals, in the place of these lapilli, we find certain little bodies consisting either of concrete gelatine or of a chalky pulpaceous matter, and to which both Scarpa and myself have traced ramifications of the acoustic nerve; neither is the *lamina spiralis* of the cochlea in man formed without reason of two structures, an osseous, and a cartilagino-coriaceous tissue; for as the same nervous branches pass from the osseous to the cartilaginous portion of the *lamina spiralis*, it is natural to conclude that receiving sonorous impulses from both, these impulses are communicated by means of a different mechanism in the two cases. This idea is confirmed by an examination of the calcareous fragments found in the labyrinth of Rays, and which are composed of two portions; one pellucid and resembling a tremulous jelly, the other white and chalky, seem to discharge the same function in these animals, that the cochlea does in man. These fragments are so divided, that their gelatinous and chalky portions lie in contact by means of extensive smooth surfaces. Nature has so disposed the extremities of the auditory nerves in the semicircular canals of all animals, that these extremities receive the sonorous impulses directly from a fluid. This is very plain, even in man, where the dilatations termed ampullæ, and which correspond with a similar enlargement of the nerve, are both filled with and surrounded by a fluid. In fishes it is still more evident, for in Rays, a nervous filament can be traced to each ampulla, which it enters and forms within a crescent-like septum.

“Scarpa was the first to discover the remarkable difference in consistence and texture which exists between that portion of the auditory nerve which supplies the cochlea, and that which is distributed to the vestibule and semicircular canals. The latter surrounded on all sides by a fluid, are soft and pulpy, evidently fitted to receive impulses from a fluid; the former, on the contrary, firm



and ramified, are adapted to the reception of vibrations from a solid."

Weber next proceeds to detail the circumstances connected with the proper discharge of the function of hearing, and which render this double provision necessary. On this subject I shall not copy his observations, for if the fact of this double provision be conceded, its utility can be at once proved both *a priori* and by experiments; one, Weber relates, which is striking. Take a musical sounding fork while vibrating, and place the handle between the teeth, keeping the lips closed on it, while both ears are stopped with the fingers; we now hear its tones more loudly even than when the ears were open: open now one ear, and immediately the sound heard by that ear appears to be diminished. The same thing happens when the instrument is applied to the left temple, the right ear being closed with the finger; we now hear the tones more distinctly with the right ear than with the left, although the former is at so much greater a distance from the instrument; now, here, the sonorous vibrations must be propagated through the bones of the head.

Weber is at a loss how to explain the remarkable fact that closing the ear makes the sound received from a vibrating body, through the bones of the cranium, appear louder than before. This fact, he observes, appears paradoxical, for we cannot understand why one source of sound should seem to produce a greater effect, the moment another co-operating source of sound which arrives by the route of the meatus externus is cut off by thus stopping that opening with the finger. There is in truth a great difficulty here; three explanations suggest themselves: the apparent increase of loudness in the sound heard through the bones of the head may arise from the cessation of all other sounds that usually arrive by the meatus externus, and which in the natural state of the organ serve to dilute and drown the sounds derived through the other channel, in the same way that light admitted into a room from several different windows seems to diminish the intensity of that which enters from any one window. This appears to me a more tenable explanation than either of those suggested by Weber, who thinks that the closure of the ear may act mechanically on the internal organ, so as to dispose it to propagate sounds through the bones with more readiness. How this could be effected I cannot even guess, nor do I place much reliance on his hypothesis, that the sound coming through the external meatus produces vibrations in the internal ear, which to a certain extent obliterate those that arrive through the bones.

Weber mentions a curious fact with regard to sounds. Shut one ear, and then whistle the note *d* marked with four lines  $\overline{\overline{\overline{\overline{d}}}}$ , or any still baser note, and you will hear it more distinctly with the closed than with the open ear; whereas if the note be higher, we hear it more distinctly with the open ear!

Many facts prove the facility with which sounds are conveyed through the solid textures of the body to the internal ear. It is by this channel that we hear the slightest touch applied to the hair, the slightest scratching of any portion of the integuments of the head or face. Close the lips and bring the teeth into contact ever so gently, and it is scarcely possible to avoid producing a noise which is heard distinctly. This latter experiment is still more striking when the external ears are closed. Experiments and observations are still wanting to ascertain how far the same channel may not be the means of conveying vibrations imparted to even distant parts of the skeleton; from some experiments I have made, it seems extremely probable, that when we stand erect upon, or when we place a hand on a solid, its vibrations may be conveyed in each case to the internal ear. The different joints which intervene do not present any interruption of the continuous solidity necessary for this conveyance, inasmuch as the articulating surfaces are always in close contact. Our solids, therefore, may be regarded as so many natural stethoscopes interposed between the cochlea and the media in contact with all parts of our bodies. It may be well to bring this subject to a close by giving Weber's concluding sentence:—

“ Si igitur ex his, quae nunc diductius exposita sunt, verisimile est, vocem propriam hominis et mammalium ab ossibus cranii excipi, ad cochleam potissimum propagari et hac de causa facilius ab aliis sonis extra corpus excitatis et ad meatum auditorium propagatis discerni; utilitas, ex hac auris fabrica ad nos, maxime vero ad infantes et bestias redundans, non parvi aestimanda est. Multum enim haud dubie hac re proficimus, quod iam in prima infantia diverso modo id, quod a nobis efficitur, ab effectibus causarum extra nos positarum discernere discimus.”

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*Birth Days of celebrated Living Authors.*

A CHANGE in the fashion of almanacks indicates unequivocally a change in the spirit of the times, for each generation being wont to attach to particular days the memory either of occurrences they consider peculiarly important, or of personages they revere, we can detect in their calendars the most prominent

characteristics of the "homme moyen" the average man of each epoch. It would form a curious subject of inquiry to compare the almanacks of the dark ages with those which followed the restoration of letters, and with those which have ushered in each succeeding year of the last half century; but we have not time or space for this comparison, and must consequently content ourselves with observing, that we hail it as a good sign of the times to find the birth days of philosophers and learned men, noted in some of the Continental calendars. Formerly those annuals exhibited no record of science, afforded no memorial of the greatest benefactors of mankind, the mighty dead who dedicated their lives to enlarging the boundaries of knowledge, and whose genius revealed the secrets, the most precious secrets of nature; and, indeed, in British almanacks, even now, not one day out of the three hundred and sixty-five is so consecrated, not one is marked as having given birth to Newton, Harvey, Watt, Jenner, or Davy! It is not our intention to enter further on this subject, and we shall therefore proceed to present our readers with a list of the birth days of living German authors, selected from amongst those most distinguished in the medical sciences, with an addition of a few who enjoy an European fame as naturalists or philosophers. The life of man is but three score and ten, and at the present moment its whole length when completed lies equally divided between this century and the last, so that the years of the man of seventy fall as it were into two portions nearly equipoised and balanced on the year 1800 as a centre. At present the literary workers born in the *last* century are the most productive, but their numbers already exhibit a notable diminution, and in a few years they must retire to make way for more buoyant and youthful energies.

Blumenbach,	Gottingen,	May 11,	1752.
Tiedemann,	Heidelberg,	August 23,	1781.
Trommsdorf,	Erfurt,	April 2,	1770.
Liebig,	Giessen,	May 14,	1803.
Rose,	Berlin,	August 6,	1796.
Mitscherlich,	———	January 17,	1794.
Humboldt,	———	September 14,	1769.
Döbereiner,	Jena,	December 13,	1780.
Olbers,	Bremen,	October 11,	1758.
Oerstedt,	Copenhagen,	August 14,	1777.
Ehrenberg,	Berlin,	April 19,	1796.
Rust,	———	—— 5,	1775.
Schweigger,	Halle,	—— 8,	1799.
Callisen,	Copenhagen,	—— 8,	1786.
Seiler,	Dresden,	—— 11,	1778.
Himly,	Gottingen,	April 30,	1762.

Gräfe,	Berlin,	March 8,	1787.
Carus,	Dresden,	June 3,	1789.
Burdach,	Königsberg,	— 12,	1776.
Kunth,	Berlin,	— 18,	1788.
Weber,	Leipzig,	— 24,	1796.
Schultz,	Berlin,	July 8,	1796.
Valentin,	Breslau,	— 8,	1810.
Nägele,	Heidelberg,	— 12,	1778.
Müller,	Berlin,	— 14,	1801.
Hufeland,	—	August 12,	1762.
D'Alton,	Halle,	July 17,	1803.
Barkow,	Breslau,	August 4,	1790.
Rathke,	Königsberg,	— 25,	1793.
Horn,	Berlin,	— 24,	1774.
Oppenheim,	Hamburg,	October 5,	1799.
Purkinje,	Breslau,	— 17,	1790.
Brandes,	Salzuflen,	— 18,	1795.
Ideler,	Berlin,	October 25,	1787.
Clarus,	Leipzig,	November 5,	1774.
Langenbeck,	Göttingen,	December 8,	1776.
Schlemm,	Berlin,	— 11,	1795.
Schönlein,	Vienna,	April 2,	1790.
Hecker,	Berlin,	January 5,	1795.
Froriep,	—	February 21,	1804.

ROBERT J. GRAVES.

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*An Essay on the Laryngismus Stridulus, or Croup-like Inspiration of Infants; to which are appended Illustrations of the general Principles of the Pathology of Nerves, and of the Functions and Diseases of the Par Vagum and its principal Branches.* By HUGH LEY, M.D. &c. &c. London. Churchill, pp. 480.

THE importance of laryngeal disease is so forcibly impressed on us every hour, that we are disposed to rejoice at each attempt to elucidate so difficult a subject, and we receive with kindness every novel opinion, even although it may not altogether coincide with our own previously formed ideas. The time is yet within our own recollection when these diseases were but imperfectly understood: when but few attempts had been made to classify and arrange them under their respective heads, and when consequently an indecision and uncertainty of practice prevailed with respect to them that were but few degrees removed from absolute empiricism. If it is not so at present, if improvements in diagnosis and in practice have been introduced that could scarcely have been calculated on even by the most sanguine; if numbers of lives are now saved which heretofore



would most probably have been lost; it is scarcely so much to be attributed to an increase of interest being excited towards the subject, as to the energy with which pathological science has in latter days been cultivated. Brought into operation in the investigation of almost every disease, it has been applied to those of the larynx and trachea with singular success, and it is a matter of no small pride and gratification to us that some of the practitioners on this side of the channel, if they have not led the way, have certainly not been very far behind in this particular branch of our science.

The work before us professes to treat of but one affection of the larynx; one always formidable and too often fatal, and one which, although mentioned by a host of writers, from the father of medicine downwards, has been but imperfectly described, and its pathology almost, if not entirely overlooked. It is known to the medical public by a variety of names; the *asthma* of infants of Millar; the *cerebral croup* of Pretty; the *spasm* of the glottis of Dr. Marsh; the *spasmodic croup* of other writers; and the *laryngismus stridulus* of Mason Good; the latter appellation is that which our author prefers to retain. Indeed in no respect can indefatigable diligence and patient research be better exemplified than in the summary of opinions contained in the introduction to the work before us, wherein the names of no less than forty-one authors are mentioned as recognising the existence of this as a peculiar malady, "having in some respects a resemblance to croup, although essentially distinct, and requiring a total difference of treatment."

Our author has divided the first part of his treatise (that which refers directly to the *laryngismus stridulus*) into six chapters. In the first the history of the disease is discussed, the second treats of its causes, the third of its pathology, the fourth of the diagnosis, the fifth of the prognosis, and the sixth and last of its treatment. It is not, however, our intention to follow him through these different sections, being satisfied that by examining the second and third, every useful purpose will be answered. When the producing causes and the pathology of any disease are well understood, it will not be very difficult to distinguish it from all others, or to apply the required remedies, provided we possess them. Few medical practitioners of the present day require to be informed that young children are occasionally attacked by a peculiar difficulty of breathing, occurring for the most part suddenly, accompanied by a crowing sound, and oftentimes with a suspension of respiration for several seconds. That this difficulty of respiration varies in intensity from a single "crow" to a more prolonged paroxysm, threatening suffocation, and terminates when in recovery by a long deep drawn

inspiration with a peculiar stridulous noise—when in death by such convulsive struggles as might lead, and indeed have led to a belief that the cerebrum was engaged, “pallid and exhausted, the child falls lifeless upon the nurse’s arm, and is then generally said to have died in a fit.” In these cases there is no cough; no rauca sound of voice; no continued stridulous breathing, except we consider as such, an occasional mucous rattle in the windpipe, heard only while the infant sleeps: there is no fever, and on examination after death no trace of inflammation, nor indeed any deviation from the ordinary healthy appearance of the organ can be discovered. Under these circumstances, pathologists had no method of explaining the phenomena but by spasm, an irregular and involuntary contraction of the muscles of the larynx closing up the rima glottidis to a greater or less extent, and in proportion to such closure interfering with and obstructing respiration.

So far, then, we suppose all practitioners to be agreed, because these are facts of daily observation and too obvious to require proof: the next and the most difficult step is to discover the cause of this spasm. Some have supposed it to have an intimate connexion with an hydrocephalic tendency, because it has been sometimes seen in children with large heads and sluggish dispositions, and because signs of cerebral congestion have been discovered after death: but we have seen the disease prove fatal to the liveliest and apparently most healthy children, and the congestion may just as well be the consequence as the cause of the closure of the glottis. Others, again, have referred it to the general constitutional irritation that proceeds from painful dentition, and doubtless, cases have occurred in which the “crowing respiration” was relieved by successive scarifications of the gums according as each tooth became prominent underneath: but this, although teaching an important practical lesson, leaves the pathological connexion between the facts in as much obscurity as ever. According to others, there is a constitutional tendency to this disease in some children, a fact which it must be conceded has been painfully exemplified in more families than one; but this hereditary disposition to disease, although abundantly obvious, is too imperfectly understood to be discussed with any thing approaching to pathological accuracy. Lastly, improper or unwholesome food, indifferent clothing, a close and tainted atmosphere, and exposure to vicissitudes of climate, have been regarded as influential exciting causes, and change of circumstances in these respects has often produced an almost magical amendment in the condition of our little patients; but still are we at a loss to discover the immediate “modus operandi” of these pernicious influences, or why

they should be determined to the larynx in the form of an involuntary spastic contraction of its muscles.

We turn now to the explanation of these phenomena as offered by Doctor Ley. He supposes that the muscles that open or dilate the rima glottidis, and those that close it, are supplied by different nerves; the former being dependent on the recurrent nerves of the pneumo-gastric, the latter on the superior laryngeal branches derived from the same trunk; that these muscles, whilst in health and equally supplied with their own proper nervous influence, fairly antagonize each other, and that the one can no more spastically close "the chink" than the other can enlarge it; but if from any cause one order of these nerves comes to be deteriorated in energy, its opposing influence being proportionally impaired, its opposite will come into undisturbed operation, and the muscles it supplies act with an apparent increase of power. Now, as the superior laryngeal nerves are so situate as scarcely to be subjected to any unnatural pressure; and as the recurrent nerves in their very long course, are liable to be compressed, by the bronchial glands in the thorax if enlarged, by the lymphatic glands in the neck, or by any accidental tumours, it follows that the energy of the muscles supplied by them is very frequently impaired, and therefore the constrictors of the glottis are allowed to act without opposition and spastically shut up the glottis. It is true Doctor Ley does not deny the possibility of spasm in the sense in which we have generally understood the term, but lest by any accident we should misinterpret his meaning we shall quote his own words:—

"Although I have adduced strong reasons for believing that the closing, total or partial, of the glottis in this disease, is commonly the result of a paralytic affection of the recurrent nerves, yet it is quite *within the bounds of possibility* that a spasmodic affection of the closing muscles may also produce a similar constriction. To deny this, were to commit the same error as that which I have ventured to denounce in others, of advocating exclusive opinions with regard to the nature of this disease. We know that irritation of the extremities of the superior laryngeal nerves, as from an extraneous substance sticking within the chink of the glottis, and that active inflammation of the same surface, as in acute laryngitis, will occasion a similar crowing inspiration; and this probably from convulsive closing of the glottis."

"It is possible then that the laryngismus stridulus may occasionally be a convulsive malady; but the general history of the predisposing and occasional causes of the disease, the exciting causes of the paroxysms and the appearances upon dissection, all point to the conclusions that such is rarely the case, and that an



immense numerical majority of instances of this complaint, are the result of a paralytic affection of the recurrent laryngeal nerves, produced by the compression of enlarged and indurated glands in their course."

Now, the first observation that occurs to us, with reference to the above pathological explanation, is, that it rests on a physiological hypothesis which is far from having been satisfactorily proved; namely, that the muscles which close, and the muscles which open the rima, are supplied by nerves, not only of distinct and separate, but opposing influences. And this hypothesis is supported first on the authority of Le Gallois, who observed, after a division of, and consequent annihilation of nervous energy in the recurrents, that "every effort to inspire made by the animal only closed the glottis more effectually; and this on account of the pressure of the exterior column of air, which still further increased the approximation of the ligaments of the glottis, in consequence of their oblique position and of the cul de sac, which they formed on their anterior surfaces; on the contrary, expiration was easy." And, secondly, on the experiments of Majendie, "by which it has been *definitively determined* that the destruction by their division of nervous energy in the superior laryngeal nerves, causes the glottis to remain open." With respect to the definite validity of these experiments we can offer no observation, for having constantly experienced the insufficiency of experiment on the lower animals to explain disease in the human subject, we have not repeated them; but it may not be inapplicable to remark, that if the results of these experiments be true, they must depend on something else than the isolated distribution of the superior or inferior laryngeal nerves to the orders of muscles above referred to, for fibrils of each may be traced by dissection into both those that open, and those that close the rima.

It is, however, but justice to our author to state that he adduces a vast number of cases of this disease in which dissection, after death, shewed scrofulous enlarged glands pressing on the recurrent nerves; these were of various sizes, some large, others so small that their paralyzing influence might well be doubted, but all of them calculated, by their situation, to make a direct and positive pressure on the par vagum or its recurrent. He seems to think also, that similar appearances would have been observed by others, if *post mortem* examinations were conducted with more accuracy, and if the attention of practitioners had been directed to this point. "They have, perhaps, partaken of the common lot of things that are obvious and lie upon the surface; their very frequency and notoriety have prevented them from



being particularly noticed." We take this acknowledged frequency of enlarged glands at our author's hands. How can it be so constant, so general and laryngismus stridulus not by far more frequent than it is?

The causes of this disease have been divided by Mr. Ley, into the predisposing, the exciting, and the causes of the paroxysm; these embrace a great variety of supposed influences, many of which it would be quite superfluous to enumerate. We may, however, take a simpler view of the subject, by supposing that if the direct and immediate cause of the disease, be a tumour pressing on and paralyzing the recurrent nerve, any thing and every thing that can lead to the development of such tumour, must rank either as a predisposing or exciting cause; that which determines the sudden occurrence of a paroxysm, considering that the tumour is fixed and permanent, and always present, it is not so easy to understand. Of the first class of causes obviously the most influential, is scrofula, and to it may be referred most, if not all, of those that come within the same class or section, namely, age, constitution, climate and season, and diet. "It may doubted," says Dr. Ley, "whether this proneness does not generally resolve itself into a mere disposition to scrofula;" a remark in which he is corroborated by Dr. Marsh, who states that "all the cases of this disease which he had witnessed, had occurred in children, either themselves exhibiting marks of the strumous diathesis, or sprung from scrofulous parents." We are firmly convinced that the majority of children affected by spasm of the glottis will answer this description, because in this climate the taint of struma is so universally prevalent; and for the same reason we are convinced also that a vast number might be found with enlarged glands in the neighbourhood of, and compressing the recurrent nerves; but we cannot agree that these have been satisfactorily made out to be the causes of the spasmodic disease in question. Let us look to one of the remarkable facts confessedly connected with it.

Children only are susceptible of laryngismus stridulus, adults never being thus attacked.

The reasons assigned by Dr. Ley for this exemption are, at least, extremely ingenious. He states that the glands of adults do not so frequently become enlarged, and that even when they do, the recurrences are more effectually protected by the diameter of the trachea being wider; and, also, that the glottis of the adult is so much larger, that it is not so easily closed in consequence of want of power in the opening muscles. "Hence then it is, that, in early life a cause, which by its influence, may partially close this small chink, will occasion a sonorous inspira-

tion, but as it grows larger, although great distress in breathing may be produced by similar causes, if in an aggravated degree, the sound is very nearly obscured ; and hence also, it is, that in women, whose glottis only increases in the proportion of two-sevenths of its infantile size, the symptom, or something bearing a very close resemblance to it occasionally occurs, as has been observed in hysteria." Now, although we concede that we have never seen laryngismus stridulus, nor any thing approaching to it in the adult, we yet cannot coincide either with the facts or the reasoning that is here offered in explanation of them. Doubtless, purely scrofulous enlargements of glands do not often appear in the necks of grown persons ; but independent of them, there are other tumours occasionally that would answer the purpose quite as well. We have seen hard and unyielding and malignant tumours of the neck, that must have compressed both the par vagum and its recurrent, and at this moment there is before us the dissection of a case of large aneurism of the arch of the aorta, that seemed to have flattened the recurrent nerve, yet spasmodic difficulty of breathing formed no part of the symptoms of these cases. It may be said, however, that the increased size of the laryngeal opening will explain this fact. We think not so. When the larynx increases in size, its muscles increase with it ; their development to be perfect must be proportionate, and they are as fully capable of shutting up the rima at the age of forty as of four. This we see exemplified in many cases. The man who descends into a foul well-hole, or an uncleansed brewer's vat, suffers a closure of the rima so complete, that not a particle of air can pass, and he drops down and dies at once. We have had a patient in whom there was incipient disease of the cricoid cartilage, who died suddenly of spasm in the glottis. These, and we could adduce many other illustrations, prove that the development of the larynx in man, is not sufficient to protect him from the evil consequences of spasm.

All persons who have written on laryngeal disease, have omitted to put forward with sufficient force, the fact that it is the act of inspiration that is attended with most difficulty, and produces most distress. Every muscle that can be pressed into operation is employed to dilate the chest ; the larynx and trachea are raised as high as possible in the neck in order to meet the column of air, and facilitate its entrance ; every exertion is made to inflate the lungs, and so much energy displayed as to show that the process of inspiration, at least, is not purely passive. Thus in difficult breathing, inhalation is long drawn and attended with a stridulous sound, expiration comparatively easy, and unaccompanied by any characteristic noise ; and this is true

of all forms of laryngeal obstruction, whether produced by organic disease or by disordered function. In these terrible efforts we are satisfied that the muscles which dilate the rima are actively and powerfully engaged, and moreover, that if they were paralyzed, the struggle for existence in the majority of these cases could not be long protracted. Now, how does it come to pass that the adult, in whom this paralysis does not and has never been supposed to exist, suffers exactly the same difficulty of inspiration as the child; and although not immediately subject to the laryngismus stridulus, is nevertheless liable to be taken off by obstruction of the larynx so sudden, so unexpected, and so violent, as to be only attributable to spasm?

It will be seen that we have not been able to coincide with the pathological view taken of this disease by Dr. Ley; and yet are we not able to substitute any other theory in its place. It is easier to take an hypothesis to pieces, than to build up another in its stead; and it has really been with some doubt and hesitation, that we have put forward the foregoing remarks. There are many points connected with the pathology of the larynx still open for investigation, and amongst them there is not one more important or more difficult than that which is the immediate object of this article. Dissection throws but little light upon the subject, for the parts are found free from the marks of lesion or disease; and there seems to be little analogy between the spasm that occurs in the adult and the child, because in the former there is always some obvious cause in the existence of some irritation or inflammation in the organ, whereas in the latter it occurs idiopathically, or at least, without our being able satisfactorily to demonstrate its origin. Under these circumstances we receive Dr. Ley's essay, as a most valuable addition to medical literature. The portion of it devoted to the history of the disease exhibits such a depth and extent of research, as leaves little for any future investigation to accomplish. The causes of the disease are detailed with all the accuracy of an experienced observer, and if we have not fully agreed with the author's pathological views, it is because we believe them to be founded on experiments that are inconclusive and may be fallacious; and, moreover, are they not borne out by our own practical experience and observation. In the mean time Dr. Ley has a full right to the maintenance of a theory which he believes to be corroborated and established by numerous dissections, at least until one is offered more susceptible of proof; a task to which we profess ourselves to be totally incompetent.

We have protracted this notice of the essay on laryngismus (we fear) to a most unreasonable length, but we cannot dismiss the subject without a few words on the treatment of the disease.



As might be expected, Dr. Ley rejects as empirical the various remedies that are found in the ordinary sources of information on infantile diseases; whether designed for the relief of convulsive spasm, cerebral excitement, painful dentition, or a disposition to scrofula, although he acknowledges that the latter "are neither useless nor even ambiguous remedies;" and he substitutes a line of treatment which is most conducive to the removal of that pressure on the recurrent nerve which he supposes to be the immediate cause of danger—

"In the treatment, therefore, of this complaint, it should be a primary object to ascertain if these glands are enlarged, and tracing, if possible, the producing cause of such enlargement, to adapt our remedial measures to that cause. Nor must we simply, from difficulty in detecting its existence during life, conclude that there is in reality no such pathological condition. Tumid glands may, as has been already shewn, escape detection, even when seated in the neck; whilst if situated within the thorax they are always beyond the reach of our external senses. But, as similar diseased conditions commonly produce the same or similar results, we infer from the occurrence of the latter, the existence of the former.

"But the pathological condition of these glands only establishes the liability to the attacks; the paroxysms generally require for their production, the intermediate agency of some other event, which is to be considered as their exciting cause. It is therefore a second, but far from secondary point in the treatment of the *laryngismus stridulus* to distinguish, and to prevent or counteract the operation of these causes of the paroxysms.

"As, moreover, the attack has been in some instances suddenly fatal by producing suffocation, the patient can never be considered as quite free from hazard, and it is necessary, therefore, so to treat each paroxysm as to shorten as much as possible its duration. These are the three leading principles of treatment, and under one or other of these indications of cure, as they are technically called, all our remedies may be arranged and considered."

We, by no means seek to inquire very minutely as to the principles on which the above indications are founded, seeing that they embrace the measures usually resorted to for the removal of a scrofulous diathesis, and involve in their details those attentions to diet, temperature, clothing, and pure air, that have by all practitioners, no matter on what theory founded, been recommended in this disease and employed with the greatest success. Into these details it is impossible for us to enter, or even to afford our readers a superficial sketch of them. It would be injurious to our author thus to mutilate the very best of his chapters, and it would be unjust to any professional reader to deprive him, even in the slightest degree, of the pleasure and



advantage he must derive from a perusal of this part of Doctor Ley's work. There is in it an attention to the smallest minutiae in the management of the infant that could only be attained by long experience and patient observation, and we venture to predict that any person carefully studying the pages now open before us, will reap an ample reward in the stores of information he may thence derive; and in the facility it will afford him in the management of many other infantile diseases besides the laryngismus stridulus.

W. H. P.

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*De Phaenomeno generali et fundamentalis Motus vibratorii continui, in membranis cum externis tum internis animalium plurimorum et superiorum et inferiorum ordinum obviis, Commentatio Physiologica.* Scripserunt Prof. Dr. JOH. EV. PURKINJE et Dr. G. VALENTIN, Wratislavienses, Wratislaviæ, 1835, pp. 96, 4to.

In the seventh volume of this Journal, p. 279, was given a translation of the article in Müller's Archiv. 1834, in which the singular discovery of the existence of continued vibratory movements produced by cilia in amphibia, birds, and *mammalia*, was communicated to the world. In the following year, Drs. Purkinje and Valentin published the work now before us, containing a curtailed account of their experiments and conclusions on this interesting subject, together with an elaborate historico-critical conspectus, occupying thirty pages of what had been written on the subject of vibratory motion up to this period. In this conspectus, by the way, occurs an amusing remark on Sir Everard Home's statement in the Philosophical Transactions for 1827, that Mr. Baner discovered that the rotation of the embryo of the muscle therein described was produced by a small worm that had got into the vesicle and was feeding on the embryo. The authors declare they are at a loss to know whether he is quizzing or dreaming. "*Anglus num jocet, an somniat, nescire nos fatemur.*" As it is not my intention, however, to give a complete analysis of the work, but merely a notice that may serve as a supplement to the translation of the original communication, I shall at once proceed to select such parts as I consider best suited to that purpose.

Vibratory motion in general is defined as follows: "When any part of an animal, immersed in water or some other fluid, produces currents by which minute particles are attracted and repelled, and this process continues independently of any voluntary act or motion of the animal, proper muscular contraction,

or circulation, we say that vibratory motion is present ; and this, as shall be proved at large, depends not only most frequently, but in every instance, on the action of slender cilia." The authors proceed to observe, that when the body in which the motion resides is fixed, the current will merely proceed along its surface ; but that when it is small and suspended freely in the fluid, it will move itself also, and this motion may be simply progressive, rotatory and progressive, circumvolvent, or fluctuating, according to circumstances.

The method of observation has been already sufficiently detailed in the former notice, but there are some directions about the light to be employed, which it may be as well to add. Bright day light is stated to be the best for beginners, but when the sky is cloudy, a lamp is preferable. Direct sunshine only confuses. The observer must guard against various sources of deception, such as the flow of blood from capillaries, the employment of water containing animalcules, and, above all, the optical margin produced by the inflexion of light.

With respect to the classes of animals in which the motion occurs, that of fishes appears to form the only exception, though even here the authors are inclined to agree with Sharpey, that it may be detected in the branchiæ of the embryos of the ray and shark. In *mammalia* birds, and *amphibia*, it is universal. The same perhaps may be said of the *mollusca*. If it has been observed in the remaining classes only partially ; this may be owing, not to its absence, but to the imperfection of the instruments employed, and want of sufficient skill in the observer.

As to the parts that have been found endowed with this remarkable property, they may be referred to four classes, according as they belong to the cutaneous, the alimentary, the respiratory, or the genital system. It has been observed in those of the first class, only in the *larvæ* of some of the *amphibia*, and in many of the *invertebrata*. Under the head of the alimentary system, the authors correct an assertion they had previously made, that the longitudinal fleshy elevation in the intestine of the river muscle is alone possessed of the property, as they have since discovered it to reside in the whole of the alimentary canal in this and similar animals. The respiratory and genital systems have been sufficiently discussed in the original memoir ; and it only remains to add that the internal surface of the air-cells in birds, most distinctly exhibits the phenomenon of vibratory motion. It is to be observed that all the organs above enumerated belong to the vegetative or organic functions.

The cilia that produces this phenomenon are slender, pellucid, colourless, sub-splendent threads of equal size, with their

base resting on the surface of the membrane, and their apex free. Their length varies considerably, namely, from 0.000075 to 0.000908 of a French inch, and in almost every instance they taper from the base to the apex. Their motion is generally infundibuliform, the base of each revolving, so as to form the apex of the hollow cone; this may occasionally pass into oscillation. In a few instances the whole of each cilium appeared to wave to and fro like the tail of a *spermatozoon*; and in one case, in the branchiae of some of the species of *unio*, the upper third of each was inflected and reflected, the two lower thirds remaining stationary. This revolving motion of the cilia must depend either on the presence of irritable or muscular tissue in their bulbs, or, more probably, on certain straight, parallel, stiff fibres, united by delicate cellular tissue, which compose the surface of the vibrating membrane, as may readily be seen by examining a portion of it with the microtomic compressor. If a portion of the trachea of an ox be macerated in warm water for half an hour, these fibres will be detached, and found floating in great quantities in the fluid. It must be remarked, however, that a similar stratum of fibres has been observed in membranes that do not vibrate.

Concussion has a considerable influence in exciting or accelerating the motion of the cilia: light has none; heat, when greater than the natural heat of the animal, disturbs or stops it altogether, according to its degree, and the length of time it is allowed to act. Moderate degrees of electricity and galvanism have no physical effect on it.

The difference of the effects of chemical agents is very remarkable. Some that act powerfully on the nervous system, such as hydrocyanic acid, belladonna, opium, &c. have no influence on the ciliary motion; while decomponents and corrosives, such as acids and alkalies, put a stop to it immediately. Blood has the remarkable property of preserving it in *mammalia* and birds for so long as three days, and in *amphibia* for four: the blood should be well shaken to prevent coagulation, but even the serum has the same property. In the *invertebrata*, on the contrary, these fluids immediately destroy the ciliary motion. Milk and white of egg have rather a conservative influence. Inflammation checks or stops it, not only in the inflamed parts, but even in the whole organ affected. During the winter sleep of hibernating animals it continues undiminished.

It is mentioned in the *addenda* to the treatise, that, by availing themselves of the conservative properties of blood, the authors were at last enabled to discover cilia in the human subject also. Their previous attempts had failed from the length of time they were obliged to suffer to elapse after death, before commencing their observations. It only remains to add



that the ciliary motion appears at a very early period of the evolution of animal life, as it has been detected in the mucous membrane of the nostrils and trachea, in the embryos of mammalia of the length of only two inches, and in the minute *larvæ* of *amphibia* while yet in the ovum.

W. WEST.

*Memoirs de l'Academie Royale de Medicine.* Tome cinquieme, 1836.

WITHOUT possessing the interest in a practical point of view which distinguished the last Number of these admirable Transactions, the present fasciculus contains many papers of importance. We are presented, in the first place, with a long and laboured *éloge* on the celebrated Chaussier, by M. Pariset, in which the labours of this eminent pathologist and physician are fully and justly displayed. We would hold him up to the imitation of the student as one of those who have not buried their talent in the earth, but have returned it with interest at their master's call. During a period of more than sixty years, he never remitted in his exertions to forward the science of medicine, and proved himself a worthy contemporary of Fourcroy, of Vauquelin, of Corvisart, and of Frank.

We have next the announcement of the prizes proposed by the Academy for the ensuing year. These shall be mentioned in the Scientific Intelligence. But we cannot help expressing our regret at the absence of the stimulus of prizes in our Irish school. Let us hope that the evil will be soon remedied. By a little exertion, funds for such purposes could soon be raised, and of the benefit which would result we entertain not a doubt.

A notice on the Plague of Moscow, by M. Girardin, and a long memoir on Inguino-interstitial Hernia, by M. Goyrand, are the next papers. These are succeeded by one of the most interesting medical fragments we have ever perused. It is entitled, *Le Bicetre en 1792*, and gives an account of the liberation of its wretched inmates from the chains with which ignorance rather than cruelty had loaded them. It is a bright page in the history of the illustrious Pinel, which records that in the midst of the horrors of the French Revolution, he emancipated the lunatic from a grievous tyranny. Strange result, that freedom, then drove the sane to madness, but restored the lunatic to reason and sobriety. What a lesson in the moral and physical history of man.

The effects of corrosive sublimate in preserving wood, is



ably handled by M. Kerandrin. We shall not here enter into any statement of his result, as the paper has been already analyzed in our distinguished contemporary the *London Medico-Chirurgical Review*. A short memoir by our Professor Macartney, forms the next communication. It contains his views as to the treatment of wounds and injuries, and their cure without the production of inflammation. His doctrine is, that so far from being necessary to the generation of tissues, inflammation, if it be moderate, retards, and if severe, prevents the process in question.

Assuming that man and the animals placed in the higher degrees possess the faculty of the reproduction of tissues, in nearly as great a degree as the beings much lower in the scale, Professor Macartney teaches that this reproduction is favoured most by preventing inflammation, and that this prevention is best effected by surrounding the part with agreeable sensations.

Without impugning the practical conclusions to which these views lead, we may observe that in considering the analogous organic powers of the higher and lower classes of animals, the division of the tissues into red and white must be borne in mind. Dr. Graves has shown how the function of regeneration of organs seems to belong chiefly to the white parts of the red-blooded classes, which are thus seen to be analogous with the whole organization of the lower tribes. In practice, we may observe, that there are cases of constant occurrence in which stimulation becomes necessary to insure a healing process. The water dressings are doubtless of great advantage in many cases, but anatomy has as yet failed to give us certain or universal principles in the practice of either surgery or medicine. Professor Macartney admits this, in requiring that for the success of his method, the constitutions of his patients should be free from all congenital and acquired taints, such as scrofula, syphilis, &c.

Dr. Macartney's treatment may be stated to consist in the removal of every thing capable of irritating, attention to position, so as to prevent the mechanical stasis of blood, and the keeping the part bathed in water, either warm or cold, according to the feelings of the patient, or in its vapour, for which Dr. Macartney has suggested a simple apparatus.

The last paper is from the pen of the celebrated Amussat, on traumatic hæmorrhages, in which, among other important subjects, he urges the necessity of establishing schools for experimental surgery, where operations on living animals should be made the ground-work of the surgery which is afterwards to deal with the human body.

W. S.

*Traite Clinique des Maladies du Cœur, &c. &c.* Par J.  
BOUILLAUD.

THIS is a most important work, and one that will rank with the writings of Corvisart, Testa, Bertin, and Hope. We shall enter into a more detailed analysis of its contents in our next number.

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*The United States' Medical and Surgical Journal.* No. XV.  
October 1835.

ONE number of this periodical has reached us, and we hasten to notice it. It is brought out in an unassuming form, but contains a quantity of important and curious matter.

The number in question, which is that of October 1835, has eight original articles, besides reviews and scientific intelligence. The following are the titles of the original communications: On Ozæna, by Dr. Heron; on the Co-existence of Diseases, by Dr. Watson; on the Use of the *Datura Stramonium*, in Sarcocèle, by Dr. Everitt; a case of Adhesion of the Placenta, by Dr. Swett; Report of Dispensary and Private Practice, by Dr. Watson; on the Use of the *Crusta Genu Equinæ* in Epilepsy, by Dr. Mettauer; the Pathology of Phlegmasia Dolens, by Dr. Jennings; and on the Management of Sore Legs, by Dr. Miller.

Of these papers, the most important are those of Dr. Watson, on the Co-existence of Diseases, and that of Dr. Mettauer. In the first of these essays, the author brings forward a great number of instances, from the experience of others, as well as his own, to show that the Hunterian dogma on this subject is really unfounded,—a dogma so commonly taught in the schools, and so completely refuted by its author.\* The following are the combinations of specific diseases noticed by Dr. Watson:

Variola and rubeola; rubeola and vaccinia; vaccinia and scarlatina; scarlatina and rubeola; scarlatina and variola; variola and lepra; variola and psoriasis; variola and febris intermittens; variola and syphilis; vaccinia and syphilis; syphilis and febris intermittens.

Besides these, he mentions other groups of specific diseases referred to by authors, but of which no definite cases have been quoted; such as variola and syphilis; rubeola and gonorrhœa; rubeola and pertussis; rubeola, pertussis and variola; variola

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\* See Hunter on the Venereal, p. 3. The passage is an admirable example of the mystery of surgery.

and varicella; variola and parotiditis; hydrophobia and gonorrhœa; syphilis and dysentery.

"I do not wish (says the author) to maintain that an individual affected with one disease, is so susceptible to another, as he would have been prior to the commencement of the first, allowing both to be specific, and to involve, to a greater or less degree, the general system. But is this owing, as Hunter and his disciples state, to the *incompatibility* of different morbid actions? I hold that it is not; for, that such actions are not incompatible, has been (at least if we can place reliance in the words of men who are thought sufficiently able to judge) clearly and unequivocally demonstrated.

"How then are we to account for the fact, that these complications of specific disorders occur so rarely as to have allowed the suspicion that they could never occur at all? I am not prepared to answer this question definitely; but we may be allowed to suppose, that when the system is affected with one disease, either general or local, the consequence of morbid poison or of healthy inflammation, if sufficiently severe to involve the general health, the sympathies of relation are excited in a peculiar train, and are consequently not so likely to be directed into a different or opposite course, by the supervention of any cause that would, under other circumstances, give rise to another disorder. But although these complications are rare, we have nevertheless seen that they may now and then occur; and the fact of their occurrence might here lead us into several serious considerations."

We regret that our limits will not permit us to enter at greater length into the contents of this Journal, particularly as another important paper by Dr. Watson occurs. In the department for Scientific Intelligence, in our present Number, we shall give the results of Dr. Mettauer's experience of the new remedy for epilepsy; and close this notice, by congratulating the profession of New York on the appearance of their Journal, and expressing our best wishes for its ultimate success.

W. S.

### *New German Journal.*

DIEFFENBACH, of Berlin, assisted by Fricke and Oppenheim, of Hamburgh, has published the two first numbers of a new medical journal, entitled, *Zeitschrift für die gesammte Medicin mit besonderer Rücksicht auf Hospitalpraxis und ausländische Literatur*. This journal appears monthly, and under the auspices of Messieurs Perthes and Besser, booksellers in Hamburgh. We have received the numbers for January and February, have read with much interest the original notices and abstracts from German and foreign works, and can strongly recommend this to such of our readers as wish to get a good German journal.



## SCIENTIFIC INTELLIGENCE.

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*A brief Account of numerous small Crystals observed on the Peritoneum of the Human Subject*, communicated by Robert Harrison, M.D. Professor of Anatomy and Physiology in the Royal College of Surgeons, one of the Surgeons of the city of Dublin Hospital, &c.—It may not be uninteresting to the readers of this Journal to receive a brief account of a peculiar appearance which I have observed on several occasions in the cavity of the abdomen, and of which I do not recollect to have read any description, or to have seen any example in the various collections of drawings or of preparations I have examined; at the same time, I have little doubt that from the frequent opportunities I have had of observing it, that others must also have seen it, and therefore that some account of it may probably have been published, although I have not been so fortunate as to have met with it. I allude to the existence of “*minute crystals on certain parts of the peritonæum.*” It is now some time since my attention was first accidentally directed to these, by the sensation which they gave to my hand, when removing some of the viscera of the abdomen, in the course of general dissection; I have since met with several examples, in all I should think about five or six, and in these the greatest similarity prevailed. The crystals, though extremely small, are very distinct, they are prismatic and exhibit clear and brilliant facets; before removal from the membrane they appear semi-transparent, not very unlike the colour of the peritonæum itself, hence they are usually detected by the touch rather than by the sight. They are principally to be found in the lower regions of the abdomen: in the first case I met they were in great abundance on the cæcal and iliac portions of the peritonæum; I have since found them in both iliac regions, as also in the inguinal fossæ, also along the course of the colon and the forepart of the rectum, but not on the bladder; I have seen a few on the mesentery, and on the terminating convolutions of the ileum intestine; but in all the examples I have met, they were most abundant in the iliac regions. I have not observed any on the stomach, liver, spleen, or duodenum, or on any part of the peritonæum in the upper regions of the abdomen; in the lower part of the cavity they were not confined to the visceral, though certainly they were more abundant on it than on the parietal portion of the membrane.

I cannot consider this condition of the peritonæum as a morbid



one, although I believe it to be very unusual; in all those cases in which it had existed, the various contents of the abdomen appeared perfectly normal, so that I could not connect the presence of these crystals even with the coincidence of any diseased structure. In general, indeed I almost think always, I have found them in the bodies of females; the subjects were all apparently far advanced in years and much emaciated; in one case, the first I met, there was some serous fluid, about a quart, in the cavity of the abdomen: this at first led me to indulge in the speculation that this peculiar matter might have been a crystalline deposit from this fluid; an idea, however, which further experience and closer observation proved to be untenable, as in a short time afterwards I met with the same appearance in the abdomen where the surface of the peritonæum was unusually dry. On a careful examination, too, of these crystals, I found that they were not loose and unattached, so as to admit of being rubbed off, but, on the contrary, they were set very close together, and were intimately connected to the membrane by a very fine but still a resisting film, or a sort of albuminous pellicle, which was continued from the peritonæum over the base of the crystal, on which it was imperceptibly lost; one might have almost fancied that these little crystalline prisms were impacted in the extremities of the exhalent vessels. In order to detach any of them it was necessary to scrape them off with the knife; on their removal, however, no orifices were observable in the membrane, and the latter appeared in a state of integrity, and free from any abrasion. When these crystals were removed and washed, they became perfectly transparent, their prismatic form and polished surfaces were then also very apparent. Having collected a sufficient quantity of them, I requested my friend Dr. Apjohn, Professor of Chemistry in the College of Surgeons, to submit them to analysis, the general result of which he has been so kind as to communicate to me.

Dr. Apjohn says, "the crystals being pulverized, were treated with caustic potash, which caused the evolution of ammoniacal gas, and left a flocculent precipitate, which, upon examination, proved to be magnesia. The alkaline solution, neutralized by acetic acid, gave with muriate of lime a white precipitate, insoluble in water, but soluble, without effervescence, in the muriatic and nitric acids. From these experiments it is obvious that the crystals were composed of phosphoric acid, ammonia, and magnesia." From this statement we may be disposed to consider these crystalline deposits of the ammoniaco-magnesian phosphate as somewhat analogous to what we more frequently meet with in the urinary passages, and which depositions are more prone to occur in very advanced life, indicating as it were, a sort of partial decomposition of the animal frame preceding its general dissolution. I shall not, however, at present attempt to speculate as to the proximate cause of these depositions, but shall only remark on the fact of their being, so far as we can yet learn, confined to the peritonæal or serous membrane of the abdominal cavity; I have never seen them in the pleuræ or in the pericardium; I once,

and only once, met with a very slight trace of the same formation on that portion of the arachnoid membrane which covers in a very loose manner the cerebral protuberance or pons Varolii, but the crystals were not in sufficient quantity to enable me to institute an accurate comparison. Finally, I may add that a short time since, when examining the head of a child about seven years of age who had died of hydrocephalus, and in which the arachnoid membrane on the inferior surface of the medulla oblongata was inflamed and thickened from tubercular deposit, I detected a small patch of the membrane to be in a very rough condition; this, on close examination, I perceived was partly owing to the presence of very distinct small short crystals of a brownish colour and which were intimately adherent to this diseased and thickened membrane; the quantity of these, however, was so very small, and the parts were so much disturbed and injured by the examination, that I was not able to institute any more accurate investigation as to their nature and properties; from their general appearance, however, as well as from all the concomitant circumstances, I should consider these as a totally different product from that which I have first described as found in the peritonæum.—R. H.

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*Still-born Children.*—In the last Number but one of this Journal, I have stated, in reviewing Dr. Collins' work, that the proportion of still-born children in the Lying-in Hospital, was one in twenty-seven. This is an error, for the proportion was one in fifteen.

The error was caused by inadvertently calculating the proportion which the male still-born gave without including the female. It is an error of little consequence as it happens, for the total numbers being given, all interested in the inquiry have the means of rectifying the mistake. I may observe, that several have objected to my assertion, that to Dr. Collins belongs the credit of having first pointed out the peculiar efficiency of tartar emetic combined with opium, in certain cases of puerperal convulsions. I have great respect for the authority of some of these gentlemen, but they must, to convince me of my error, point out some publication in which this treatment is mentioned, of a date prior to its actual introduction in the Lying-in Hospital by Dr. Collins; in other words, they must refer me to something published at least eight years ago.—R. J. G.

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*Maltreatment of a Fractured Leg in 1803, by Deschamp and Boyer.*—Cases detailing the sufferings and diseases of remarkable men are particularly deserving of attention, for they possess the advantage of an interest derived from the patient's celebrity that serves to fix the details more forcibly in the memory of the reader. Our friend M. Jules Cloquet, the celebrated anatomist and surgeon, has lately published *Souvenirs sur la Vie privée du General Lafayette*, in which the following notice of the General's sufferings from a fracture occurs: "During his last illness, Lafayette related to us more than once the particulars of the treatment he underwent in

1803, for the fracture of the thigh, caused by falling from a height ; Deschamp and Boyer, whose memories I respect, and under whose care I was educated, was called in, and enclosed the limb in a machine constructed so as to maintain it in a state of continual extension. Lafayette having promised his surgical friends, that he would patiently endure the pain and inconvenience necessarily attendant on the treatment, did not give utterance to a single complaint, and did not betray the least sign of being in pain for the whole of the twenty days which elapsed before the apparatus was for the first time removed ; when it was removed, however, his surgical friends could not conceal their consternation ; Deschamps turned pale, and Boyer appeared thunderstruck. The bandages of the upper portion of the apparatus had, by their pressure, cut deeply into the flesh, and exposed the femoral artery, while the skin of the dorsum of the foot was rendered gangrenous by the inferior bandages, so as to lay bare the extensor tendons of the toes. More than five weeks were required to heal these wounds, and when the cure was completed, an almost complete ankylosis of the hip-joint had taken place, so that he was lamed for life."—R. J. G.

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*Discovery of Toads in Ireland.*—Mr. Mackey, our worthy Demonstrator and Curator in the College Botanic Garden, announced at the last meeting of the British Association, that he had found toads near Killarney, contrary to the received opinion that St. Patrick had rid us of such unpopular fellow-subjects. We have a letter before us of the Rev. Mr. Porter, bearing testimony to the fact ; according to this gentleman—"These animals swarm at Rossbay, on a low, sandy, promontory, running into Castlemaine bay, about fifteen miles west of Killarney. They are smaller than the English toad ; the prevailing colour on the back is a brownish or dirty black, mixed with a greenish tinge underneath, and on the sides the skin is covered with dots mostly white, and mottled with black. The sides and limbs have larger transverse black blotches, somewhat regular : over the shoulders are a few dull reddish orange spots. The iris is of a gold colour."

The colours and markings of this species agree very well with the description and plate in Shaw's Zoology of the mephitic toad, (*Rana Mephitica* or *Calamita*), from which, however, it seems to differ in having none of that disagreeable odour, from which that kind derives its name ; and also in the absence of a glaucous green tinge in the eye, which Shaw ascribes to the mephitic toad. In these latter points it agrees with the natter jack, (*Rana Bombina* or *Rubeta*), which is found in sandy situations in a few parts of England. The description, however, of the natter jack does not answer as well in colours to our species. I cannot help observing on a strange error in Brewster's Cyclopædia, where among the generic characters of the toad is mentioned a vertical pupil ; whereas in every species but one, the pupil when contracted is horizontal.—J. A.



*Description of a newly invented Instrument applicable to the Cure of Fractures of the Jaw*, by Francis L'Estrange, A. M., M. R. C. S.—All practical surgeons have lamented the inefficacy of our means in adjusting or setting certain fractures of the lower jaw; indeed the most simple are attended with a vast deal of trouble to the surgeon, and by no means proportionate advantage to the patients; for the patient is *bandaged up*, having some firm unyielding substance between his teeth, or the upper jaw is made the splint or support. In this latter case it is obvious, that the patient cannot take sustenance without displacing, more or less, the bandage, or by the extraction of one or more of the incisors. In any case it is extremely difficult to keep the mouth properly cleansed; but in fractures engaging the posterior part of the lower jaw, all our means of adjustment have been hitherto only partially successful, and considerable deformity continues. Now it is to fractures of this latter kind, that I wish particularly to call the attention of the profession; two such fractures have lately occurred in this city, one under the care of the Surgeon General in the Meath Hospital, the second under Professor Harrison in the city of Dublin Hospital, which have succeeded quite to the satisfaction of both gentlemen. The apparatus employed for setting these fractures was an instrument invented by me, which for simplicity and efficacy, is, I think, likely to prove of great advantage. In the application of this instrument we have no occasion for bandages; we have a full view of the fracture, the patient can take any fluid, can express his wants, and the mouth can be cleansed at pleasure without interrupting the cure. I shall here give a short description of the instrument, and regret that it is not in my power at present to submit a drawing, as I was obliged to take it asunder to make some slight alterations, but the principle on which the first was constructed, shall be retained in the new instrument. I beg to premise a few observations on the nature of this fracture: it occurred between the tricuspidate or anterior molars; the anterior portion remained in its natural position, whilst the posterior was drawn considerably inwards towards the mesial line, so that the superior molars overlapped the inferior; it is therefore manifest, that if the fracture healed in this unnatural position, the food could not be masticated, or at least very imperfectly so at this side of the mouth. What then was to be done to obviate this deformity? Clearly to push outwards the posterior portion of the fracture, and to retain it in its normal situation till bony union had taken place. In this attempt I have succeeded by the instrument, the description of which I here subjoin, and hope in your next publication to be able to submit the drawing to your notice. The instrument is made of German silver, about four inches in length, it can be made to expand about three inches or more, and consists of a double pair of callipers with a flat joint in the centre, which divides the instrument into two equal parts, which we may call the internal (as they are for the mouth) and external shanks; the internal are flat, bowed, taking the shape of the horizontal ramus of the lower jaw, and intended to lie on the teeth; the ex-



ternal shanks are bent downwards at an obtuse angle to rest on the chin, with a screw attached which *divaricates* or closes both shanks as circumstances may require; to the internal edges of the internal shanks is attached a flat plate of silver of a semicircular shape, about an inch in length and half an inch in depth; to the external surfaces of these plates, are soldered at their inferior edges a short silver pin set off at right angles, which is intended to pass between the interstices of any two teeth, for the purpose of fixing the instrument and preventing its displacement by the gangrene. Its mode of application is very simple, the internal shanks are introduced closed into the mouth, by using the screw attached to the external; the internal legs are *divaricated*, and the silver pin fixed in the interstices of the opposite and corresponding teeth. As the internal shanks expand, they force outwards the posterior portion of the fracture, till it is adjusted to the anterior portion. The internal shanks of the instrument remain in the mouth without inconvenience to the patient, as they do not interfere with the motions of the tongue, and the lips being brought together at pleasure prevent the overflow of saliva. In conclusion, I may here observe, that this instrument is also applicable to the treatment of the simple fracture, where the portions deviate merely from the same horizontal plane, but in this latter species of fracture, we require as an auxiliary an instrument which I invented some years ago, but of this more on a future occasion.

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*Unusual Formation of the Femoral Vein.*—The following communication respecting this peculiarity was made to the Dublin Medico-Chiurgical Society, and transmitted to us by the author. In the lower part of the popliteal space, the popliteal vein consisted of but one trunk, as usual, and held its natural situation with respect to the surrounding parts; but in the upper third of the popliteal space it divided into two branches, which past off at an acute angle, having one of the muscular branches supplied by the popliteal artery in the apex of the angle. The veins then ascended, one, the internal and posterior, holding its usual position with respect to the artery, namely, posterior to it at first, but getting internal as it ascended; the other branch crossed the artery, and ascended anterior, and a little external to it, which relation it held until it arrived at the upper third of Scarpa's space, where it crossed the artery again, and then uniting with the internal, formed the femoral, which appeared dilated into a sinus. The vein then had the usual relation to the artery, only somewhat larger; passing under Poupart's ligament; it then diminished to its usual size, and so continued.

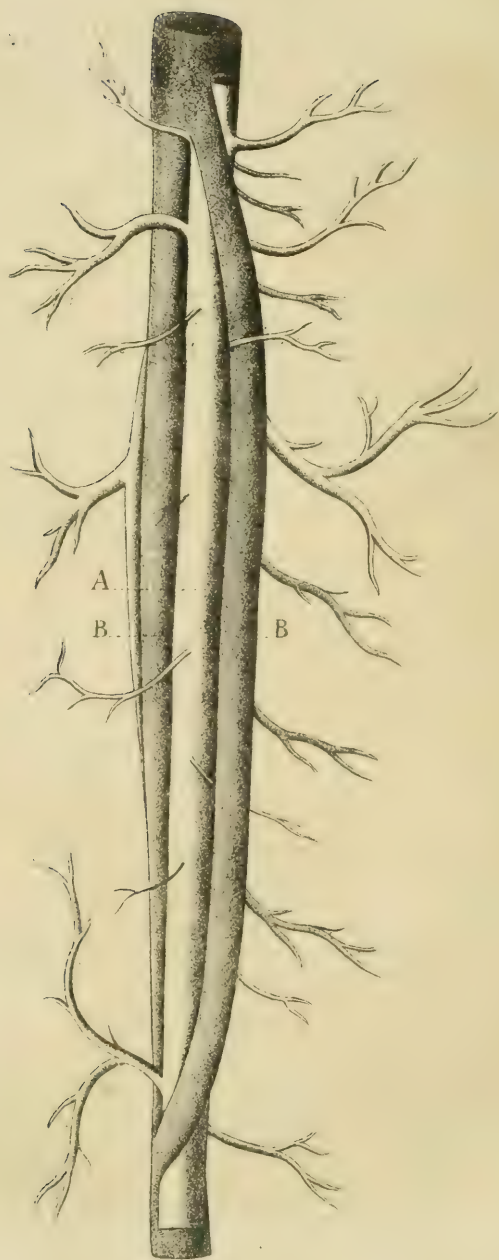
The branches received by these veins were few; from three to four in number entered the external, about the middle of the thigh.

The nerve occupied its usual situation, and the saphena vein was regular. The origin of the profunda artery was higher than usual.

The femoral artery, with the accompanying veins, were all enclosed in the same sheath.

The popliteal vein, before dividing, was of its usual size. All





A TL. Arter. BB Tr. Ven.

other anatomical relations were natural. I am not aware that this malformation of the femoral vein has been described before: it appears to me important, when taken into consideration with regard to the operation for popliteal aneurism.

The operator would experience much embarrassment in opening the sheath of the vessels, as we are told to incline rather to the outside; the result of which practice in this case, would be the danger of wounding the external vein, which lay both anterior, and a little external to the artery. With regard to the passing of the ligature round the femoral artery, we are advised to do so from within outwards, in order to protect the vein; however, I have frequently observed surgeons meet with considerable difficulty in doing so, and succeed with comparative ease in the opposite direction.

G. W. MACREADY.

To this paper I have added a drawing, showing the relative position of the artery and veins as appeared on dissection.

*Prizes proposed by the Royal Academy of Medicine of Paris, for the years 1836 and 1837.*

First prize, by the Academy, of 2000 francs—*To point out the analogies and differences between typhus and typhoid fevers.*

Second prize, of 1200 francs, founded by Baron Portal—*To establish the anatomico-pathological history of the softening of tissues.*

Third prize, of 1000 francs, founded by Madame Michel Née De Cirieux—*On the treatment and cure of diseases proceeding from super-excitation of nervous sensibility.*

Fourth prize, of 2000 francs, founded by the Academy—*What is to be understood by the term Phthisis laryngea? What are its organic alterations, causes, species, terminations, and treatment?*

Fifth prize, founded by Baron Portal—*To show the influence of pathological anatomy on medicine, from the time of Morgagni to the present period.*

*Tincture of Broomseed in Dropsy.*—The following is Dr. Pearson's formula for this medicine, which he strongly recommends, as combining tonic and diuretic properties:

℞ Spartii juncei sem. contus. ℥ij.

Spirit. tenuioris, ℥viiij. Macera per dies decem et cola.

The dose is from one to two, or even three drachms daily, in an aromatic vehicle.

*Cupping Glasses in Strangulated Hernia.*—In 1828 Dr. Köehler, of Warsaw, succeeded in reducing a scrotal hernia, after it had remained obstinately incarcerated for three days, by the merely incidental application of a cupping glass. Having, then, never heard of the employment of the suction-pump in similar cases, he scarcely ventured to attribute his success to the real cause: yet the occurrence impressed itself upon his mind, and induced him, on reading Dr. Busch's Observations on the use of the Suction pump, in Hufeland's



Journal, for 1832, to give this new method of reducing incarcerated hernia a fair trial. The first experiment was made on a man, aged sixty, who had been affected with a scrotal hernia of the left side for nine years, and which suddenly became incarcerated, in consequence of an indigestion. The patient became affected with violent colic, and all attempts on the part of a surgeon to effect reposition were fruitless. When Dr. K. first saw him, he had been in this state for three days; and the scrotal sac had attained the size of an ostrich's egg. The features were sunken, and indicated great anxiety; the body suffused with a cold sweat; abdomen inflated, hard; extremities cold; pulse scarcely perceptible, and thready; bowels not relieved for three days; fæcal vomiting and singultus ensued. In vain the most active treatment had been already employed, and an immediate operation appeared to be the only possible means of saving the patient, although, under the circumstances, even that resource seemed next to hopeless. The swollen and inflamed parts being still capable of bearing some degree of pressure, Dr. K. made an ultimate attempt at taxis; but that failing, the suction-pump was then had recourse to. On its first application over the abdominal ring, borborygmi were heard within the incarcerated sac, and, to the surprise and satisfaction of every one, reposition was effected immediately afterwards. The vomiting instantly ceased, a few hours later the bowels acted freely, and the patient entirely recovered in a few days.

Six cases of incarcerated inguinal and one of incarcerated crural hernia (in a female) are further detailed, in all of which the strangulation, after resisting every other kind of treatment, short of actual operation, yielded almost immediately to the relaxing powers of the suction-pump.

In the instance of a Jew pedlar, however, greater perseverance in the new method was found requisite. This individual (whose age was sixty-two) had been affected, during a period of twelve years, with a scrotal hernia, which, owing to a mismanagement of the truss, became ultimately strangulated. When the patient was first examined at the Jewish hospital, the hernial sac was of the size of a child's head, and somewhat tense, though not remarkably tender. The patient had vomited twice; but his bowels had (in spite of several clysmata, which were administered to him before entering the hospital) remained constipated for four days. No success having attended a first application of the suction-pump, venesection and an anodyne ointment were had recourse to, together with the exhibition of calomel in liberal doses. No improvement was, however, effected by these means; the vomiting returned, the fever continued unabated, whilst the affected part became more and more painful. Under these circumstances, Dr. K. resolved on renewing the application of the suction-pump. This second attempt again proved a failure; but on the trial being repeated, slight peristaltic motion within the hernial sac became perceptible; and immediately after the fourth application of the instrument, complete reposition of the hernia was effected with-

out difficulty. Copious alvine evacuations ensued shortly afterwards, and in a few days the individual had recovered his former health.

In an obstinate case of strangulated inguinal hernia, a colleague of Dr. K. once succeeded in accomplishing his purpose of reduction, by simply applying an inverted tumbler, by way of a cupping-glass, at the point of strangulation.

Professor Janikowski communicated to Dr. Köehler a case of strangulated umbilical hernia, wherein he had employed the suction-pump with perfect success. The patient, a corpulent unmarried woman, aged fifty, had been afflicted with umbilical hernia, which never admitted of perfect reposition for the space of two years, when true symptoms of strangulation supervened. After three days of obstinate costiveness, stercoraceous vomiting ensued. The hernial protuberance was of the size of a large orange, hard and very sensitive. All the usual remedies having proved abortive, the suction-pump was at length resorted to. Its application was productive of great pain, and the integuments became, to a certain extent, excoriated, as they drew up and filled the glass bell. The instrument, having been allowed to operate for some little time, was at length withdrawn, when *complete* reduction of the hernia was effected with perfect ease. Abundant stools quickly led to recovery; and the application of a suitable truss removed every inconvenience under which the woman had formerly laboured.

A further enumeration of cases in which taxis was accomplished, and the knife superseded by means of the suction-pump, appears to Dr. K. to be superfluous. In twenty-three cases, most of which were of a hopeless kind, the new method never once failed him; and it were greatly to be wished, he concludes, that so simple a remedy might be called into more general use.—*Hecker's Annalen. Erster Band. Viertes Heft*, 1835.—*British and Foreign Medical Review*, April 1836.

Sir James Murray published a paper in July 1832, in the London Medical and Surgical Journal, upon the remedial efficacy of the air-pump, and the effects of diminishing atmospheric pressure.

We were present at meetings of the Surgical Society of Dublin, early in 1835, when he read papers upon the local and general agency of this principle, and detailed cases, among others, of the reduction of hernial tumours by means of the air-pump, either by increasing or diminishing pressure, some of which operations had been witnessed by several eminent surgeons of this city.

We may also observe, that the adaptation of this process to *hernial tumours*, formed part of the printed prospectus of his lectures in 1834.

From these facts, we think that Sir J. Murray may lay claim to originality if not priority in this treatment of strangulated hernia.—Eos.

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*On the Employment of Sheet-Lead as an Application to Wounds and Ulcers.*—M. Reveillé Parisé informs us that, when he was with the French army, at the famous siege of Saragossa, in 1808-9, the

supply of medical stores for the wounded had been altogether expended, and that he was obliged to have recourse to a variety of substitutes for lint, plaster, and other dressings. Under these circumstances, he happily thought of using thin sheets of lead, which had the double advantage of being easily procured (by beating out common musket-bullets,) and of being easily kept clean. Fortunately, too, this novel dressing was found to promote the cicatrization of many wounds. The plates must be as thin as a sheet of writing paper, and uniformly smooth, especially when they are applied to raw surfaces. It may be supposed that they are apt to become uneven and wrinkled, and that thus they must rather irritate the wound or ulcer; but this objection applies rather to their misuse than to their proper employment. If they are secured in their place by bandages, well put on, it will be found that the lead-dressings are as smooth and comfortable to the patient's feelings as lint or any plaster. But it is not our present intention so much to recommend them to the exclusion of the ordinary applications, as to suggest their use as a most convenient and economical substitute on certain occasions. The expense of hospitals for the mere article of lint is very great: and, in time of war, it is not very easy to maintain a constant supply of it. The quality too of lint, in the present day, is exceedingly variable, a large proportion being uneven, knotty, and from being bleached by the use of chlorine, apt to be irritating to the tender surfaces of wounds. When the discharge from a sore is scanty, the lint dressing often adheres to the edges of the wound, and there is difficulty in removing it; and, when it is more profuse, the lint is apt to form, at one part, quite a bag of matter, which is thus prevented from an easy escape. However indispensable, therefore, lint may be on the whole in the practice of surgery, it cannot be denied that it has its disadvantages, especially when the supply is not abundant, or the quality is not the very best.

The manufacture of this article has of late very sensibly diminished, in consequence of all the linen rags being eagerly bought up by the paper manufacturers, and also of cotton clothes having come so much more than formerly into general use; "*le préjugé* (adds our author) *ridicule qui faisait regarder comme malsain de se servir de draps de coton, et d'envelopper les enfans dans les langes de cette substance disparaît journellement.*" In consequence of the increased price of good lint, a variety of substitutes have been proposed. One of these is a fine sort of tow, prepared in a particular manner, and to which the name of "*charpe vierge*" has been given by the French surgeons; but the trials which have been made of this substance are quite unfavourable to its adoption. Should the lead plates be found by others to be as useful, as M. Parisé assures us they have been in his practice, he will have the merit of having introduced a very ingenious improvement into surgery. To prevent any misconception of his proposal, be it remembered that he recommends the use of the sheet-lead only to such solutions of surface as are "*en voie de cicatrization,*" and not to recent or to spreading wounds. The ulcers to



which the sheet-lead dressing is best suited, are those which are superficial and granulating, whose surfaces are covered with a layer of fibrino-purulent matter, and whose edges are red and even; in short, such as are healthy, and have a natural tendency to heal of themselves, if protected from all sources of external irritation. On the other hand, for ulcers which are deep, irregular, and painful, or of which the discharge is very profuse, we must have recourse to poultices, or other appropriate dressings, until the signs of incipient cicatrization make their appearance, and then the sheet-lead may be used with the best hopes of success. The large superficial wounds caused by some burns and vesicatories, especially in young children, are admirably suited to this mode of dressing. Most surgeons will acknowledge that these apparently simple sores have often baffled them most teasingly; when the ordinary applications seem to be useless or hurtful, recourse should be had immediately to the sheet-lead. It ought to be secured in its place by compresses and bandages, or by strips of adhesive plaster.

The softness and pliancy of the metal enable the surgeon to give the plate any shape he may wish, and to cut it as he would do a piece of paper. It is perfectly innocuous, the protoxide of lead being well known under the name of litharge, as a common application to raw surfaces. We do not, by this remark, mean to imply that the lead plate acts in any other manner, than as a means of mechanical defence and support.

M. P. has tried sheets of tin, silver, and gold, and he has found them all succeed nearly equally well, provided they be made perfectly smooth, and applied so evenly and uniformly, that no irritation is induced; but, in point of ductility, the lead is greatly superior to tin, and its cheapness recommends it before the others.

That greasy applications are positively injurious to some ulcers, will not be disputed by any surgeon. How often do we observe that mere abrasions of the skin, situated over superficial bones, as the tibia, are obstinate and most troublesome of cure, and that all the ordinary dressings seem to do rather harm than good. If we apply dry lint, or use poultices or lotions in the former case, the sore is apt to be fretted by the lint adhering to it, and in the latter, the disposition to heal often appears to be interrupted. Under such circumstances, the use of the lead plate will be found to be at once most simple and efficacious.

A gentleman, while descending a staircase, wounded his heel against the sharp edge of one of the steps: the wound was small, and quite superficial, and instead of healing in the course of a day or two, as was expected, it remained open for several weeks, in spite, or perhaps rather in consequence, of a variety of ointments and plasters, which were successively tried. The patient annoyed that so trifling a wound baffled so much "doctoring," dressed it of his own accord with dry lint; but this would not do; the lint stuck to the edges of the wound, and confined the discharge, and the sore became deeper and larger than ever. M. Parisé's advice was now taken.



A piece of smooth and very thin sheet-lead was now laid on the wound, and kept in its place by two or three slips of plaster. Under this simple dressing, repeated for several days, the wound very speedily healed.

Every surgeon must have experienced occasionally a most troublesome delay in curing ulcers, or indeed simple abrasions of the skin over the olecranon, spine of the tibia, malleoli, &c. As a general rule we should dissuade the use of greasy or adhesive plasters, or even of dry or wetted lint in such cases; and advise the patient merely to cover the injured part with a piece of sheet-lead, or of any other equally simple and innocuous application, such as goldbeater's skin, and leave the cure altogether to nature.

One advantage of the sheet-lead over the usual applications, to which we have not alluded, is, that there is less necessity to renew the dressings so frequently, as when lint is used; for, the wound is kept much cooler, and the tendency of the discharge in hot weather to become acrid and offensive, is very sensibly diminished. There is one form of superficial ulceration, which is very often most difficult and obstinate of cure; we allude to herpetic and impetiginous sores. Now, although we do not mean to assert that the sheet-lead is adapted to every sore of this description, or that it has any healing efficacy "*per se*," we do not hesitate to recommend its use, in preference to the ordinary applications. Ointments and all greasy or irritating plasters, very generally disagree with these sores; and, on the whole, simple astringent washes appear to be most serviceable. The chief objection to the use of these is, that the linen, which has been wetted and applied, is apt to become occasionally dry, and to adhere to the raw surface, and thus to irritate it and prevent it from healing. The sheet-lead prevents the rapid evaporation, and thus keeps the sore in a moist state during the intervals of the wet application.

The sores which are apt to occur on œdematous limbs is another tribe which is often equally intractable, and which very often appears to be rather aggravated than relieved by the ordinary dressings. M. P. has had recourse to the use of mildly stimulating washes, and the sheet-lead with decided advantage, in a number of such cases. Baron —, advanced in years, had for some time been labouring under chronic hepatitis, which had at length induced ascites and general anasarca.

The distended skin of the legs became red, tender, and excoriated, in consequence of the friction of the bed-clothes, and of the bandages with which the limbs were swathed. The excoriations were at some places so deep that they might be considered rather as ulcers than as mere abrasions of the skin. The finest charpie, the mildest washes and ointments, were tried: but every means appeared only to aggravate the distress. M. Parisé being now summoned to his assistance, recommended that the limb should be kept in the horizontal position, the raw and ulcerated surfaces be covered with very thin sheet-lead, and this to be secured by a few turns of a linen

roller. The comfort derived from this simple treatment was speedy and decided, and the sores began gradually to cicatrize and heal up. During the remainder of the Baron's life, there were frequent returns of his dropsical complaint, and at these times, the limbs always suffered in the above-mentioned manner. The same local treatment was adopted, and invariably with success.

As an example of the effects of the sheet-lead dressing in the ulcerated surfaces which are apt to follow the application of blisters in some constitutions, and especially in young children, we quote the following case.

M. P. was requested to visit a child, on whose arm a blister had been applied for an obstinate chronic bronchitis. The raw surface had never shown any disposition to heal; it had become ulcerated, and had extended itself in all directions, so that nearly the whole arm from the shoulder to the elbow, was excoriated and inflamed. The child's health had suffered much from the constant pain, and irritation, and want of sleep. The dressings, which had been used, had been either utterly useless, or positively injurious. M. P. recommended that the arm be covered with a piece of thin sheet-lead, and no other application be used. In the course of a very few days, the whole of the raw surface was completely healed.

The sheet-lead is well adapted to most varicose ulcers. As a matter of course, regular and even compression of the limb must be employed at the same time. Professor Marjolin has recommended this treatment for such sores, in the article, *Ulcere*, *Dict. de Medecine*.

In conclusion, we may confidently recommend the use of sheet-lead as a dressing to all ulcers, which are superficial, and from which the purulent discharge is not very profuse; more especially when they have a tendency to cicatrization, and when, therefore, it is the principle object of a surgeon to defend them from any irritation which may interrupt the healing process. Even when the suppuration is abundant, some practitioners have had recourse to the sheet-lead, with the simple modification of pricking a number of holes through the thin plates, for the purpose of allowing part of the matter to ooze out. The economy, cleanliness, and convenience of the remedy, as well as the avoidance of all irritation, itching, and other distress, which are so frequently induced by the common dressings in certain ulcers, are such obvious advantages of the sheet-lead used as we have explained in the preceding observations, that they cannot fail to recommend it strongly to the attention of the practical surgeon. We have only further to state, that the sheets or plates ought to be made of different thickness, and that they must be always perfectly smooth, even, and of such consistence, that they may be readily cut into any size and shape with a pair of ordinary scissors.—*Bulletin Generale de Therapeutique*.—*Medico-Chirurgical Review*, April 1836.

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*Conclusions on Pericarditis*, by Dr. Hughes.—1. Pericarditis occasionally, though rarely, occurs without any obvious, sometimes

with only negative, but most frequently with positive and well-marked symptoms.

2. The cases, with characteristic signs, of which the diagnosis is not difficult, are of two kinds which are attended by different and even opposite symptoms, and generally followed by different results.

3. This difference of character depends upon the nature of the inflammatory product; which is fluid in the one, and in the other, for the most part, solid.

4. The cases with fluid effusion are generally rapid in their course, and fatal in their result; whilst those with solid effusion often continue for a long period, and the patients frequently recover, when little or nothing is done for their relief.

5. Though generally continuing of the same character during the whole course of the acute complaint, yet, as the nature of the effusion may change in the progress of the disease, these different sets of symptoms may both appear, at different times, in one and the same case.

6. Rheumatic pericarditis is almost universally accompanied with solid effusion, pain in the præcordia increased on pressure, regular and sharp pulse, and *bruit de soufflet*.

7. This *bruit* is, in these cases, probably dependent on inflammatory thickening of the valves, or of the fibrous tissue connected with them.—*Guy's Hospital Reports, an Essay on the Symptoms and Diagnosis of Pericarditis.*

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*Flannel in Hot Climates.*—"In the United Service Journal for Aug. 1835, there is a very valuable paper by Dr. Ferguson, on the 'Health of Troops,' which we strongly recommend to our military medical readers,—and, indeed to all military men, whether medical or not.

"We are gratified to find our own opinions, respecting the use of flannel next the skin in tropical climates, corroborated by a talented army physician. Dr. F. observes:—'I, for one, protest against it (flannel) as an enervating habit, of which the healthy, hardy soldier can never stand in need. To the feeble and valetudinary it is most useful; and, as an hospital indulgence, highly proper; but, when worn in the crowded barrack-room, with, too often, bad washing and insufficient change, it becomes a deposit of filth—even of contagion, irritating to the skin and incompatible with health and cleanliness.' Dr. F. very properly makes some exceptions, such as in bivouacs, and when the soldier is encamped, and in a rigorous climate. 'With the above exceptions, it should never be seen either in the barracks or quarters.'"—*Medico-Chirurgical Review*, April 1836.

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*Collyrium of Henderson.*—℞ *Stychninæ*, gr. ii. Acid acet. dilut. ℥i. Aq. distil. ℥i. In the treatment of amurosis, a few drops of this collyrium are to be placed on the conjunctiva several times in the day.



*Discovery of the Chloride of Mercury in the Brain of a Syphilitic Patient.*—M. Reynaud has communicated to the Royal Academy of Paris a case of syphilis, in which considerable quantities of mercury, in various preparations, had been used. The patient died with cerebral symptoms; and, on examining the brain, the chloride of mercury was found, although nine months had elapsed since the employment of the medicine. This gave rise to an interesting discussion, in which facts in corroboration, and also against the statement, were made by several of the members present. M. Marchand, of Toulon, has found mercury in the brain, and Orfila and Devergie, in the *Dictionnaire de Medicine Practique*, have given his mode of analysis; yet the latter has failed to detect this mineral in the blood, urine, and saliva, although he has been able to discover mercury in a solution so weak as to consist of one part of the salt to 120,000 of fluid. In the course of the discussion, M. Gerardin stated, that in the Strasburgh Museum there existed a cranium affected with caries, in which the metallic mercury could be seen adhering to the osseous fibres.\*—*Archives Generales*, February 1836.

*Torsion of Arteries in Operations on the Neck of the Uterus.*—M. Aumssat has communicated to the Royal Academy of Medicine the details of an operation in the neck of the uterus, in which extirpation was performed for cancerous disease; a strong jet of arterial blood occurring, M. Aumssat seized the vessel, and performed torsion with instantaneous success. He is the first surgeon who has thus operated on the uterine arteries. It is of importance that the vessel should be at once seized, for if the uterus be allowed to re-ascend, it becomes extremely difficult to discover the orifices of the divided arteries.—*Archives Generales*, February.

*Extract of a Letter from Professor Christison, of Edinburgh, to M. Roubiquet.*—"Doctor Geiger has found a volatile alkali in the *conium maculatum*, which seems to form the type of a new class. I have repeated his experiments, and the results are all in accordance with those of Dr. Geiger.

"I have treated 40 pounds avoirdupois of the seeds of conium, and I have obtained 3 ounces 2 drachms of a fluid oil, such as described by Geiger. I have particularly studied the therapeutic effects of this substance, and what analogy it might bear to those produced by the extract of cicuta itself, and to ascertain if *conine* be the true active principle of this plant. My experiments have demonstrated them as perfectly identical.

"Conine is, without doubt, one of the most violent poisons known, and has a great relation to strychnine. It causes death by

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\* Quere—Was a noble lord's skull in the above state, when, as he has sworn, St. John Long's liniment extracted globules of quicksilver out of it? The licentiate St. John Kinchela may perhaps answer the question.



asphyxia, in paralysing the respiratory muscles. The heart is not attacked, and the sensibility remains until the annihilation of the respiratory power.

"This deleterious action cannot be modified by acids, as Geiger has supposed; on the contrary, coneine becomes more energetic when saturated with hydrochloric acid. Two drops of coneine introduced under the skin of a rabbit, have caused death in one minute, while another rabbit, which had taken the same dose in the stomach, was not killed for two minutes. I am about bringing forward a paper on this subject, of which I shall transmit you a copy; and I intend to add to the memoir some reflexions on the medicinal effects of coneine. At present I shall merely say, that my experiments have led me to examine the therapeutic utility of this medicine."—*Journal de Pharmacie*, January 1836.

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*Acute Rheumatism of the Joints, treated by Aconitum Napellus.*—Monkshood was first introduced by Stöerck as a cure for rheumatism, and he imagined its curative powers to depend on its sudorific effects; but in a number of observations made by M. Lombard, it was found not to produce sweating. According to Dr. Duncan, monkshood was found to be an effectual remedy in rheumatism, but the relief was not permanent. Mr. Lombard states he has found this medicine to give complete relief, often in one hour, but mostly in from twenty-four to forty-eight hours, and looks on it as exercising a specific action on the disease, without causing any untoward symptoms.

The preparation used by M. Lombard is an alcoholic extract; he considers the extract usually made to contain too much vegetable matter and starch. The manner in which he prepares it is as follows:—The expressed juice is slightly boiled to coagulate the vegetable albumen, it is then evaporated in a salt-water bath, taken up by alcohol, filtered, and then evaporated again at a low temperature; by this process the volatile principles are not lost nor injured by heat.

We need not transcribe the cases given by M. Lombard, and shall merely state the conclusions he has arrived at, viz.:

1st. The alcoholic extract of aconite is endowed with a specific property against acute articular rheumatism.

2nd. It speedily relieves the pains and swelling, and dissipates the synovial effusions in joints attacked with acute rheumatism.

3rd. This medicine does not act as a derivative on the skin, or in intestinal canal.

4th. When administered in large doses, it acts as a strong stimulus on the encephalon, and appears to modify its circulation.

5th. The alcoholic extract contains the active principle of the *aconitum napellus*, at least so far as its anti-arthritic qualities depend.

6th. The alcoholic extract may be administered in increasing doses, from six grains to a drachm and a half, in the twenty-four hours.

*Hypertrophy of the Brain.*—1. From the short historical sketch it appears that pathological writers have hitherto had a very imperfect knowledge of the phenomena connected with hypertrophy of the brain. M. Laennec did not observe the peculiar changes of structure which the brain presents in this affection. Scoutetten notices the greater consistence of the brain. Dance is the first to take much notice of the change of texture, though in his definition he limits the change to a mere addition of molecules. Portal, Otto, and Andral, have added several facts. British pathologists afford but faint indications of an acquaintance with the affection.

2. That cases of hypertrophy of the brain are met with where no change of texture can be discovered, and the enormous size of these brains arises from the mere addition of similar particles.

3. That cases of hypertrophy occur, in which, added to the increased size of the brain, there is a change in the texture of the brain, which has been described as resembling boiled albumen, ground rice pudding, cream cheese, &c. ; a flattening of the convolutions ; little or no blood or serous fluid in the vessels, cavities, or membranes of the brain. That this state of the brain is of a more acute character, and is probably produced more or less rapidly by any causes that excite the brain or its blood-vessels, or that increase general or partial nutrition.

4. That hypertrophy is allied to or connected with apoplectic seizures, either as a precursor, a concomitant, or a cause ; that in this state of the brain, simple sanguineous apoplexy may be more readily induced, or life may be destroyed by a very small clot of extravasated blood.

I have no doubt that in the dissection of apoplectic brains, many cases of hypertrophy have been entirely overlooked, and the brain has been reported as normal ; now, believing that I am correct on this point, I take the liberty of impressing on the minds of medical practitioners the further investigation of this subject, in consequence of its obvious bearing on the practical treatment of apoplexy and other diseases of the brain.

5. That extensive disorganization of the heart and lungs may impede the return of blood from the brain, or so obstruct its circulation as probably to occasion hypertrophy, or enlargement of the brain.

6. It is probable, that in cases of sudden death which on dissection have been attributed to a flaccid state of the heart, angina pectoris, spasm of the heart, &c., hypertrophy of the brain, causing simple sanguineous apoplexy, though unnoticed, may have been the sole cause of death.

7. That in brains that are hypertrophied, both children and adults are sometimes destroyed by active inflammation of the brain, terminating in ramollissement ; and also that this affection is frequently connected with the more slow form of ramollissement in adults, whether arising from inflammation or not.

8. That in some children who, from the size of the head, are suspected to be suffering under hydrocephalus internus, or the disease

terminating in the deposition of fluid in the ventricles, it is probable that the brain is in a state of hypertrophy.

9. That the brain is sometimes affected partially by hypertrophy, either of one hemisphere, one lobe, or of the corpora striata or thalami.

10. That hypertrophy is confined to the cerebrum; the cerebellum is not so affected.

11. From an extensive series of observations, it appears that the average weight of the brain goes on increasing from one year old to twenty; between twenty and thirty there is a slight decrease in the average: that afterwards it increases, and arrives at the maximum between forty and fifty; that after fifty to old age the brain gradually decreases in weight.

12. That the brain is sometimes unusually large, not amounting to hypertrophy, in persons dying of various diseases, especially in extensive pneumonia, and other diseases of the lungs and heart; and in these cases the brain is generally very much loaded with blood.

13. That the brain in the advanced periods of life, and in some diseases, is diminished in volume or atrophied, either generally or partially; and that there are certain marks observed in dissection, by which this state of the brain may be known. It is also probable that there are symptoms occurring during life indicating atrophy of the brain.

14. That in phthisis pulmonalis, diseases of the stomach, and other emaciating disorders, the brain also sometimes undergoes a process of wasting.

15. That in cases of atrophy of the brain, the place previously occupied by cerebral substance is supplied by serous fluid, or by deposition of bone; and this deposit of bone frequently takes place on the inner surface of the cranium, sometimes in the diploe.

16. That the cerebellum is subject to atrophy, as well as the cerebrum.—*From Dr. Sims' Paper in the Medico-Chirurgical Transactions, Vol. xix.*

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*Dr. Elliotson on Creosote.*—It is now a year since I began my trials of Creosote—the period to which my trials of every other remedy extended before I communicated my results to the profession; and my experience, subsequent to my paper being read in the Society, confirms every thing I advanced both negatively and positively. Its extraordinary power over nausea and vomiting, and dyspepsia, I have witnessed in at least fifty more cases, in which the stomach was neither inflamed nor diseased in its structure; a case of severe hiccup has at once yielded to it. I have prescribed it in a fourth case of diabetes, and am able to give a further history of the three already mentioned, but which warranted no conclusion as to the curative powers of the remedy. Although all the three found their health improved, I stated that the specific gravity of the urine of two was unaltered. The last of the three appears to have neglected his medicine, to have gone abroad, and consulted many persons; and he died,



Dr. Kerrison informs me, two months ago, but under what circumstances we are ignorant. The second I saw two months since, not at all worse, but not farther improved, his urine being of the same specific gravity. The first I saw six weeks back, and he complained again of thirst and frequent micturition, but his appearance was not worse; indeed it was very good. I had no means of ascertaining the quantity or specific gravity of his urine. In none was the dose pushed very far. The fourth case is now under treatment in the North London Hospital. The patient is a young man, and takes eighteen drops of creosote three times a day. He has had a large abscess in the loins, and one of his lungs is ulcerated; but his urine is reduced from thirteen to seven pints, and his health is improved. The specific gravity of his urine is reduced. It was 1037 at his admission above three months ago; it is now 1030. It is remarkable that he took his twenty-two drops of creosote in only an ounce of water, so that it burnt the mouth of every body else who tasted it. On my learning this, I begged him to take it well diluted, and it instantly produced vertigo and headach. The dose is now twenty, and agrees perfectly, though diluted with only an ounce of water.

Tar-water was celebrated in chronic diseases of the skin. In a case of severe acne indurata, which had lasted some years in spite of all treatment, a perseverance of six months with creosote accomplished all but a cure: and the face still remains in a state of improvement which was affected. In a chronic pustular disease, not remediable by antiphlogistic measures, I certainly never saw such good from any medicine before. The woman began the remedy in November. Her urine became black in February, and remained so for a short time. I was not informed of the circumstance till after it had ceased, and did not see the urine; and I understand that other patients taking the remedy in the hospital have occasionally experienced the same effect for a short time. Some private patients have described the colour of the urine as green.

But I am anxious to mention its effect in two cases of chronic glanders, affecting one nostril and the frontal sinuses with pain and a copious and foetid discharge. The disease in the two persons was clearly contracted from a glandered horse, and I purpose doing myself the honour of laying the facts before the Society early next session, as I never read of or met with an instance like these in the human subject; former cases having been acute glanders, or chronic farcy. The sedulous injection of a weak solution of creosote up the nostril, removed the whole of the symptoms, after a very few weeks, and I hear the patients are still well. I need not say that the disease has always hitherto proved fatal in the horse.—*Med.-Chir. Trans.* Vol. xix.

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*Mr. Cock on Mal-Formation of the Internal Ear.*—At the request of Dr. Babington, who is physician to the Asylum for the Deaf and Dumb, I have, within the last two years, taken the opportunity of examining the temporal bones of five children who died



in that institution, and in two of these have detected such palpable deviations from the normal structure, as would indicate that a congenital mal-formation does exist oftener than is generally supposed, and therefore that to this cause, many cases of deafness may reasonably be ascribed.

The subjects examined were all children who died of strumous diseases of the thoracic and abdominal viscera. In three instances, one or both ears were the seat of scrofulous ulceration, affecting the tympanum and meatus externus, with partial destruction of the membrana tympani. In one case, the cavity of the tympanum, together with the mastoid cells, was completely filled with the thick cheesy deposit of scrofula, whilst a similar affection pervaded the whole cancellated structure of the petrous bone. The connexions of the ossicula auditus were destroyed, but the bones themselves remained entire. I merely mention these facts as indicating the strumous habit of body, which I believe prevails pretty generally among the deaf and dumb; for as these affections could have existed but for a short time previous to death, they can hardly be supposed to have had any connexion with the congenital defect in the organ of hearing.

I may also remark, that in all the cases examined, the petrous portions of the temporal bones exhibited more than the usual varieties of size and shape. In some the bone was so deficient in particular spots as barely to cover the internal cavities, whilst in others there appeared a preternatural osseous development. In one instance, the petrous bone of a child twelve years old, exceeded in size, hardness, and compactness of structure, that of any adult which I have witnessed.

The mal-formation which I discovered in two instances, may be described in a few words. It consisted in a partial deficiency of two of the semicircular canals. The extremities of these tubes opening into the vestibule were perfect, but the central portions were impervious, or rather did not exist at all. In the first case, I had the opportunity of examining the ear from one side only.\* The vertical and oblique semicircular canals were both impervious at their central portions.

In the second case both ears were examined. On the right side, the middle portions of the oblique and vertical canals were wanting, the bone presenting an appearance like that already described. On the left side, the horizontal and vertical canals exhibited a similar imperfection. The scala tympani likewise was terminated, at its larger extremity, by a bony septum, which separated it from the tympanum, and occupied the situation of the membrane of the fenestra rotunda.

With the exception of these mal-formations and the scrofulous affections of the tympanum mentioned above, which were probably of recent occurrence, no deviation from the healthy state could be discovered in either of the five subjects examined. The Eustachian

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\* This examination was made in the month of November, 1832.

tubes were pervious; the bones, muscles, and membranes, entire and natural; the labyrinths were filled with their transparent fluid. In no instance did the auditory nerve present any peculiarity, although carefully traced from its origin to its distribution. The chorda tympani was present in every instance, but I cannot vouch for the integrity of all the little nervous fibrillæ, which pass into the tympanum and ramify on its walls, requiring the aid of a microscope for their dissection.

In addition to these two cases of mal-formation I may state a third, which was dissected by my friend Mr. Dalrymple, and is now in his possession. In this instance, the aqueduct of the vestibule was so large as to admit the passage of a small probe, whereas, in the natural state, a fine hair can with difficulty be introduced into the canal.—*Med.-Chir. Trans.* Vol. xix.

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*On the Crusta Genu Equinæ (Sweat or Knee Scab, Mock or encircled Hoof Knees, Hangers, Dew Claws, Night Eyes, or Horse Crust,) in Epilepsy, by John P. Mettauer, M.D., of Prince Edward Co. Va.*—This essay is the work of some of my leisure hours last winter during a protracted convalescence. It was intended chiefly to award to my deceased parent, through the channel of a Medical Journal, the credit of having first, so far as I know to the contrary, introduced the horse crust into regular practice, as an antispasmodic, the honour having been claimed for another, hardly in existence at the time when it was employed by my father, and of course could not have been a rival for this honour.

In communicating to the medical public our experience with a new medical agent, the wish to abridge human suffering in a most afflictive disease, and not to swell the catalogue of remedies, already too extensive, has been the governing motive.

We do not appear before our brethren as *innovators*, but as fellow-labourers; tendering to the common stock the fruits of our little experience with an article, which, although confessedly new to most of the profession, has, nevertheless, been long and familiarly known to us.

The grounds upon which this new agent rests, for at least a favourable consideration of its claims upon the profession, are, its successful employment in the cure of some forty or fifty well-marked cases of epilepsy.

The substance designated by the several appellations at the head of this article, is furnished by the horse; four oval secreting surfaces, situated on the inner aspects of the extremities, near the knees, are the parts of the animal from which it is obtained. The secretion is poured out so gradually, and in such small quantities at a time, as not to be observed in its fluid, or even semi-fluid states. The crust is of variable colour, as well as density; its exterior is always of a lighter appearance, and harder than the interior, which is dark and soft; it is of a lamellated and fibrous texture, and when broken, resembles dark, soft horn; its odour is very penetrating, diffusible, and

peculiar; it is deciduous, and separates gradually two or three times during the year; when prematurely or forcibly removed, the surface from which it is taken sometimes bleeds a little, inflames, and becomes tender and sore.

Our investigations in relation to the peculiar function of the surfaces, or the offices they subserve in the economy of the animals themselves, do not enable us to say much, if anything, on this subject. Nothing certain seems yet to have been ascertained as to their uses. Conjecture and extremely vague and loose tradition, afford the only explanations. The surfaces have been supposed to separate and eliminate from the system, a fluid possessing many of the constituents of sweat, and loaded beside with properties peculiar to itself, which, if detained, deteriorates the health of the animal. The constant and regular discharge of this fluid has been thought necessary for the perfect health of the animal, in promoting a sound state, more especially of the extremities, after-heels, hoofs, and legs, all of which have been supposed to become diseased in some way by the obstructions of the surfaces.

Emunctories, somewhat similar, exist on the inner surfaces of the extremities of the swine, near the knees, which, if long obstructed, generally result in lameness and dragging of the posterior extremities; a secretion is continually distilling from them, which, like the crust of the horse, displays the peculiar odour or scent of the animal, more particularly observable when surprised or irritated. As a *medicinal agent*, the crust has been long known in this part of the country. How it found its way into use as a remedy, is not certainly ascertained. It is conjectured that the coincidence of the horse being observed to bite the crust, and to pass worms from the bowels soon after, suggested it as such, and the conjecture is by no means improbable, when it is remembered that this article was first employed as a vermifuge with that animal. The fetid odour of the crust, it would seem, might naturally have suggested the idea of its possessing remediate powers, and doubtless did indicate it as a nervine and antispasmodic, after it was supposed to possess vermifuge properties.

We have long known and employed this substance as an antispasmodic; but the merit of introducing it into regular practice, is due to Dr. Joseph Mettauer (the writer's father,) who employed it in epilepsy so early as 1782 or 1783. During the last twenty-five years we have enjoyed many and satisfactory opportunities of using the crust as a remedy in epileptic convulsions.

In collecting the crust for medical purposes, it is necessary to attend carefully to its loosening tendency from time to time, or it may fall off and be lost. It may be made to separate a little sooner by gently soliciting, and occasionally by firm compression with a bandage. This should be suffered to remain on after the period of desquamation is near at hand, to prevent the accidental loss of the crust. After it is obtained, it should always be dried a short time in the shade, and then it may be kept for use in a close jar, to prevent, so far as possible, the escape of its volatile properties.



We have to regret our inability to furnish a correct, or even a tolerably satisfactory chemical analysis of the crust; from what has been ascertained, the urate of soda seems to be one of its principal constituents; we are inclined to believe that ammonia, in combination with perhaps the lithic acid, may also enter into its composition, from the peculiar compound odour which it often exhales, much resembling that emitted by common urine after standing some time.

Two forms for administration are only used—the powder and tincture. When the powder is to be used, it should always be freshly prepared, either by pounding and rubbing the dry crust in a mortar, or by grating it with a common nutmeg grater; this last process will be found (generally) most convenient, as it enables the practitioner to reduce it, at once, to a very fine and equable powder, even if the crust is imperfectly dried.

The tincture is prepared by simply digesting the broken or powdered crust in diluted alcohol, or common brandy, exposed to a gentle heat for eight or ten days, in the proportions of one part of the former to four of the latter.

The doses of the powder vary from two to twenty grains; it may be given diffused in any liquid which the patient fancies. With young patients it is safest to begin with the minimum, and increase very gradually to the maximum doses. Should the disease yield before the largest doses are reached, no further augmentation need be made. When the tincture is employed, from  $\mathfrak{zss.}$  to  $\mathfrak{ziss.}$  are its extreme doses. Diluted with water and sugared, it may be given with very little difficulty to the youngest subjects, as it is tasteless, and in a great measure inodorous. In this form, also, the doses should be very gradually increased, to prevent, as far as possible, the danger of exciting the system too much, which might result from the menstrum, should the doses be suddenly augmented.

Possessing properties perfectly analogous to the crust, and employed with the same intention, and in nearly similar doses and forms, we will mention the parings of the hoof. In some cases it has been thought more efficacious than the crust itself. We have used it frequently in the form of tincture in the proportion of one part hoof to two of spirits, with complete success. A favourable result from the use of this remedy (which we had prescribed in a case of epilepsy) has been communicated to us since commencing this essay. Extreme doses,  $\mathfrak{zj.}$  to  $\mathfrak{zij.}$

The administration of the crust should always be preceded by a purgative or aperient. This step is designed to prepare the system for the action of the remedy, which it effects by unloading the intestines of vitiated secretions; increasing at the same time the nervous susceptibility of their mucous membranes to remediate impressions, and by determining from the head.

Aperients, or the milder purgatives, should be employed, and generally preferred in those cases of epilepsy distinguished by slight aberrations in the animal economy; in such examples the pulse, bowels, and skin are very nearly in the condition of healthy organs;



the paroxysms are short and transitory, succeeded by little or no coma, or even drowsiness. In cases marked by symptoms of greater violence, in which a decided inflammatory or congestive character predominates, cathartics should be used ; to be varied in activity and strength, in proportion as the symptoms partake more or less of acute characters ; these are to be repeated until a decided impression is made. Cases of this latter description sometimes requires V. S. also, and when this remedy is employed, blood should be always detracted from one or both of the external jugulars, if possible. Occasionally mercurials alone, or in combinations with antimonials, are required.

In the first description, or milder cases of epilepsy, some preparations of rhubarb, or rhubarb itself, should be preferred. In the more violent cases, a combination of aloes, scammony, and jalap, has generally been found most suitable ; of each from two to five grains. Calomel with tart. antim. may be added, should the biliary secretion prove very defective, in proportions of two or four grains of the former, and one-fifth to one-third of a grain of the latter. These are to be repeated daily, or once in two days, until the circulation is balanced, the encephalic congestion is in a measure dislodged, and the sympathies restored. These preparatory steps having been premised, the crust may be commenced with.

The form of preparation is to be determined by the peculiarities of constitutions, or the complications which modify the disease. Should the case occur in a constitution displaying a highly wrought sanguineous development, the crust in simple powder will be most applicable, and should be preferred.

It will be safest to begin with the remedy at night, and as soon after the disturbances of the preceding paroxysms have subsided as possible. When given at night for the first time, it is more certainly retained by the stomach, and patients, too, are less averse at this period of the day to the taking of an offensive remedy, very probably because the gastric organ is rendered less fastidious by the action of food and drinks upon it during the day.

With young subjects from six to eight years of age, two grains will, in a majority of cases, constitute the commencing dose. We have never used it with patients younger than six years, or older than thirty. Older patients, say from eight to twelve, or fifteen years of age, will bear four or five grains, or even larger doses in the commencement, and with such it may be more suddenly increased to the maximum doses, without gastric disturbances. The remedy rarely offends the stomach when the foregoing precautions are properly attended to ; on the contrary, it seem rather to compose and tranquilize this organ. Three doses in a majority of cases, are as many as will be required in the twenty-four hours. Should cases occur marked by convulsions of unusual violence, with frequent paroxysms, it may be given oftener. From many trials with this article, it has not been perceived that there is much diversity of effect when employed in large or medium doses with young subjects.

Cases requiring the tincture, differ from those already noticed,

chiefly on account of the more strongly marked lymphatic developments, with which they are associated; in such examples of epilepsy, a decided hydropic diathesis not unfrequently obtains; the adipose textures generally, but more especially of the skin, are disposed to bloat a little, with universal pallidness and reduced temperature; the secretions from the skin, bowels, and kidneys, are generally defective; the pulse is occasionally slow, feeble, and soft, but more frequently it is preternaturally active and corded, from the nervous mobility generally attendant upon imperfect sanguification; such patients are nearly always languid and sluggish, and often require diffusible stimuli to rouse the enfeebled energies, both of body and mind, to something like a comfortable state of excitation; with such subjects, the approach of the paroxysm is more gradual, and may, in many instances, be foreseen for hours, and sometimes days. To this complication of epilepsy, the tincture is most happily adapted, as it presents the remedy in the form best calculated to act promptly, as well as to meet the several indications of cure. It should (as advised with regard to the crust in substance) always be commenced with at night, and in the minimum doses; from 3ss. to 3iss. may be given, properly diluted, three or four times during the day. Being less permanent in its effects, the tincture should be given more frequently than the crust in substance, especially if the symptoms are urgent: these doses may be repeated with safety as often as once in three or four hours.—*United States' Medical and Surgical Journal*, October 1835.

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*At the third Evening Scientific Meeting of the Royal Dublin Society, held on Tuesday, March 29, 1836,*—Professor Davy exhibited some experiments illustrative of the properties of the gas lately discovered by him, which is produced by the action of water on a substance obtained by heating in a retort tartrate of potash along with a small quantity of carbon. This gas, when pure, burns in atmospheric air with a more brilliant flame than olefiant gas, and can be kindled even when mixed with four times its bulk of air. It also inflames spontaneously when brought in contact with chlorine gas, and deposits carbon in fine powder. The Professor considers it to be composed of two volumes of carbon and one of hydrogen, and the substance which produces it to be the carburet of potassium, a new compound.

Professor Kane bore testimony to the interest and importance of the discovery.

Mr. Clibborn read a paper by Captain Portlock on the *Aurora Borealis*, in which it was shown that the explanation of this phenomenon brought forward by Sir John Ross, at the last meeting of the British Association, was mentioned and refuted in a work published in Paris more than a century ago. Sir John Ross attributes it to the reflection of the sun's rays from the ice of the arctic regions into the atmosphere, and thence from the concave surface of the atmospheric strata or beds to the surface of the earth at lower latitudes. M. De

Mairan, in his treatise on the subject, published in 1733, enumerates this among the explanations that had been advanced, and brings forward some strong arguments against it. Captain Portlock further stated, that Mairan's objections to the magnetic theory of the phenomenon have been satisfactorily answered, and that that theory was rendered almost certain by the discovery of the intimate connexion between electricity and magnetism.

*History of an Operation for Artificial Anus, performed with success, by a new method, in a case of Congenital absence of the Anus; followed by some reflections on imperforations of the Rectum; read at the Academy of Sciences, November 2nd, 1835, by M. Amussat.*—The 8th of last September, I was called up in the middle of the night by an English lady, whom my friend Dr. Dubreuil had sent to me. She handed me a letter of M. Déneux, addressed to Mr. Blandin, who was not found at home. In this letter M. Déneux says, "that the case was that of a new-born infant who had a closure of the large intestines; the anus is well formed, the rectum communicates with the vagina, and the obstruction appears very high up."

At one or two o'clock in the morning I arrived at Mr. B——s, an English gentleman, living at Rond-Point, Champs-Élysées. I found there M. Déneux, who had delivered Madame B——. He told me that the infant was born on the 6th of September, at four o'clock in the evening, and that it was consequently thirty-three or thirty-four hours old; that, however, it had not yet passed any meconium.

The nurse told us that warm water injected by the anus flowed back again through the vulva. This woman assured us that she had found the linen wet with urine. We thought the fact doubtful. This first child of a second marriage, although born at seven months, appeared to me well formed and full of life; the belly, however, was hard and elastic; the anus and the vulva were well made; a flexible canula introduced by the anus, penetrated easily about two inches; an injection thrown up by this passage immediately flowed back by the vulva; a sound introduced into the vagina, by the vulva, readily met the canula introduced by the anus. We thought that the rectum was closed, and that it communicated with the vagina; that is to say, we thought we recognised the existence of a recto-vaginal fistula; in other words, *that the middle septum did not exist for a sufficient extent.*

During the examination the nurse dipped her little finger in sugared water, and gave it to the child to suck. After having carefully ascertained what I have just said, our first care was to inform the parents of it. Our declaration led them to understand that there were but two ways to give issue to the meconium, to wit:

1st. By the anus or natural passage.

2nd. By the abdomen.

It was easy to make them comprehend the danger of both opera-



tions, as well as their respective inconveniences; and we added that, in case we should succeed in finding the rectum by the vagina, there would necessarily be a communication between the intestine and the vaginal passage. In spite of our declaration, the parents at once rejected the idea of Littre's operation, and thought with us that it would be better to try and re-establish the natural passages, even with the inconvenience of a fistula, than to establish a new one in the abdomen.

It was therefore agreed that we should proceed to the search after the imperfect rectum.

With this view I proposed dilating the anus with prepared sponge.

At four o'clock in the morning a bit of this spongy body, eighteen lines long, a little less than the little finger, and with a thread attached to one end, was introduced into the anus, and supported by a compress and T bandage. It was agreed that I should return at eight o'clock in the morning to place another sponge longer and large, and that we should meet again at twelve o'clock, to perform an operation if there should be room enough.

At eight o'clock I withdrew the sponge wet and swelled; it had forcibly dilated the anus. I could introduce my little finger into it, which I made appear easily at the vulva; but I was stopped higher up by a cul-de-sac. As it was doubtful that the infant had passed urine, I tried to find the urethra with a little straight silver sound, without however being able to detect by sight this excretory canal. The little girl passed water in sufficient abundance, during my researches, doubtless because I had titillated the urinary passage with the sound. A new piece of sponge, a little stronger and longer than the first, was introduced into the anus, where it remained supported as I have described. At twelve o'clock, according to agreement, M. Déneux returned with me, to deliberate on what was to be done. I caused M. Libandy, who had expressed a wish to assist, to be admitted to the consultation.

After having taken away the sponge, which had again forcibly dilated the anus, I introduced my little finger deeply by this opening, without being able to recognise any thing but the cul-de-sac of which I have already spoken. I again easily made the end of my little finger appear at the vulva. MM. Déneux and Libandy did the same.

We then endeavoured to find if we could not discover the rectum distended by meconium, in order to perforate it.

The parents were informed that, in this last case, there would necessarily be a recto-vaginal fistula. Little satisfied with our examination, and although the infant was already much fatigued, I decided on again introducing the end of the index finger into the anus. This new research only made me find, above and behind, a soft pouch, that I suspected must be formed by the rectum. However, above and before the cul-de-sac which stopped my finger, I discovered a kind of fungus contraction that I at first took for the contracted or closed point of the intestine.



To give MM. Déneux and Libandy an idea of what I had just discovered, I told them that the body that I touched gave me the same sensation as the neck of a womb, effaced, softened, and whose opening was very narrow. Each of these gentlemen recognized what I had stated, and M. Déneux told us that he thought that this might well be the neck of the uterus. A new examination was made, and confirmed what M. Déneux had thought. It was then established that a vagina existed in which the anus *without rectum* opened, and that the vulva and anus communicated in the vagina; there were thus, by a strange anomaly, two openings in the perineum instead of one, and both opened in the vagina.\*

After having well established that we had to do with an unusual mal-conformation, and which consisted in the absence of the whole or part of the rectum, I resolved to examine the pelvis attentively, across the walls of the vagina, introducing the index finger by the anus or second opening of the vagina, with the view of discovering the wanting intestine. After well exploring the osseous parietes of the pelvis before, behind, and on the sides, not without difficulty, in front the bladder, behind the sacrum and sacro-vertebral angle which I carefully explored, I sought for the pouch which the rectum distended with meconium ought to form; in examining with the end of the finger, across the posterior wall of the vagina, I felt a flattened body which fled from under my finger whenever I had gone over a certain extent. I repeated, several times in succession, the same manœuvre, and I always experienced the same sensation. In reflecting on this fact, I thought that the object that I felt could only be the rectum. I made known my discovery to my colleagues, who after having made the same researches as myself, adopted my opinion.

Instantly the diagnosis, previously so difficult, became clearer and more certain in relation to the facts already established, viz. that the vagina, larger than ordinary, appeared alone to occupy the cavity of the pelvis, and that above and behind, on the left of the sacro-vertebral angle, existed the imperforate extremity of the rectum.

I then felt myself relieved, and disembarassed as it were from the difficulty which an operation presented in so delicate an occurrence, and I forthwith thought of putting in practice the operation that I had long meditated in cases of the absence of the rectum.

Before proceeding to the operation, we assured ourselves anew that the membranous body which we felt under the finger was in reality the termination of the rectum. The height of the end of this intestine above the skin of the perineum, appeared to us to be about two inches.

The plan to be adopted had been suggested to me by two failures which I had experienced in analogous cases, in operating, along with my friend, Doctor Roussel, on two new-born infants, in whom the

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\* This is the first time this mal-conformation has been described; at least I have found no example in authors.

imperforate rectum also terminated eighteen lines or two inches from the skin of the perineum.

In these two cases I had cut this part in the situation where the anus ought to be met with. I had dilated the wound with prepared sponge, and finally I had perforated the rectum, distended by meconium. The infants became yellow, and died at the end of a few days.

I attributed their death to the absorption of the bile and meconium over a long tract of bleeding cellular tissue.

Little disposed to perform Littre's operation, I persisted in thinking that in a like case it was much better to establish the natural passage, but seeking to avoid the inconveniences of absorption.

I thought then to draw the intestine to the opening made in the skin, and to fix it there by points of suture. Numerous experiments on the manner of establishing, in the surest possible way, artificial ani in living animals, confirmed me in my fears of the dangers of absorption, and on the necessity of bringing the intestine sufficiently out, to prevent infiltration and stercoraceous abscesses. The proposed operation appeared at first very extraordinary, and did not, at the moment, receive a favourable reception.

Many objections were raised; the danger of hæmorrhage was particularly insisted on, of abscess, &c.; finally, I was told, that if the intestine was more or less contracted, it must be divided, &c. However, after having discussed the value of each objection, I described anew the plan I proposed to follow, and which consisted "in making an opening before the coccyx, behind the vaginal anus, detaching with the finger and bistoury the posterior wall of the vagina, coccyx, and sacrum; to go as high as the cul-de-sac of the great intestine, discover it through the vagina, and, by the new passage, seize it with hooks; detach it all round, more with the finger than with the bistoury; draw it to the opening of the skin; make an opening sufficiently large, allow the meconium to flow out, and by the interrupted suture to fasten the opening of the intestine to that of the skin."

The operation was now better appreciated and received. A fresh examination was made; the diagnosis and indications appeared so clear, that it was thought that every thing since the last examination appeared admirably disposed for the bold operation which I proposed. From this moment, finding that we perfectly agreed, the operation was resolved on, and the chances were laid before the parents, who, knowing the melancholy position of their child, were resigned to leave us to do every thing we judged best. They were not left ignorant of the dangers of this operation. Nevertheless I informed them, contrary to what we had hitherto said, that if we succeeded in establishing an issue for the meconium, not only would we save the infant, but there would be no recto-vaginal fistula.

During all this time the infant had been placed in a warm bath, in order to allay the irritation produced by the long and painful examination.

Every thing being ready, a new examination respecting the execution of the operation having been made, and the infant being placed on the table, as if about to be cut for the stone, I made with a short-bladed bistoury with a convex cutting edge, a transverse incision, from six to eight lines long, behind the vaginal anus; another incision, directed towards the coccyx, gave the form of a T to the opening, by which I introduced my finger to open a passage between the vagina, and the coccyx and sacrum. I cut and tore the cellular tissue which unites these parts; a sound placed in the vaginal anus put me on my guard against the perforation of the posterior wall of the vagina; in this manner I penetrated two inches at least, and found the end of the intestine. From this moment the infant strained instinctively, and afforded me a better opportunity than by the vagina, of discovering the end of the rectum, which formed a kind of pouch. My colleagues were as happy as myself to recognize this disposition.

I then resolved on seizing this pouch with a double hook; drawing it towards me, I detached the intestine from the weak adhesions which surrounded it, except on the side of the vagina, where I was forced to use a bistoury with much circumspection. This manœuvre so facilitated the drawing down, that we soon perceived the intestinal pouch at the bottom of the wound, and to our great satisfaction observed the meconium coming by the sides of the hook. I next pierced through the cul-de-sac of the intestine with a needle threaded with double thread, and aided by this means and the hook, the intestine was brought to the level of the skin. A sufficiently large opening having been made between the thread and the hook, a great quantity of meconium and gas gushed out. This period of the operation was so rapid, and so satisfactory to us and the assistants, that one of them was eager to inform the mother of the happy result. After washing the infant, who appeared much comforted by this excretion, I finished the operation in the following manner:

Being assured that the intestinal opening was sufficient, I seized with torsion forceps the edges of the opening. I confided these forceps to assistants who were to practise on this intestine prolonged traction until the part laid hold of should pass beyond the opening in the skin.

I first made three points of suture at each of the angles of the wound; but I remarked that the traction exercised on the intestine made it enter in again, and that then it was no longer on a level with the skin.

My experiments on living animals have, in fact, taught me, that the condition essential for the establishment of artificial anus, is to make the mucous membrane pass beyond the level of the skin, to prevent the infiltration of matters between this organ and the opening in the integuments. I therefore made with more care six or eight points of suture in the circumference of the intestine, the mucous membrane of which I spread out in the shape of a funnel.

During this operation little blood flowed. Immediately after, injections were thrown in the new rectum, and the infant was placed in a hip bath.



Two or three hours after the operation, from the loss of a certain quantity of blood, the infant appeared faint and cold, but soon revived on being placed with its mother; the wound was poulticed.

Every thing went on satisfactorily, the fæcal matter being discharged by the wound with the greatest ease. At the end of twelve days the artificial anus began to contract. The fissures were cicatrized, and gave to the artificial anus the wrinkled appearance of the natural one.

The contraction augmenting, I introduced tallow wicks, then wax bougies, finally gum elastic bougies, which were less painful.

In performing this operation my object was to fill up the gap left by the mal-conformation, that is to say to lower the end of the large intestine to the level of the skin. This proceeding rests on the possibility of elongating the extremity of the large intestine one or two inches. The inferior mesenteric artery alone opposes itself directly to a greater elongation; for by this manœuvre, the sigmoid flexure of the colon could easily furnish a greater prolongation to this defect of the rectum.

In this way I have chiefly in view to hinder bile and meconium from passing on surfaces deprived of mucous membrane; and consequently to guard against the destructive effects of absorption, which are as fatal as those of the urine in similar circumstances, and especially when these fluids can lodge, as in the cavity of the pelvis.

To-day, November 2nd, that is fifty-five days after the operation, the little girl is in a perfect state of health; one would not think, in looking at her, that she had undergone so serious an operation. It is true that she has had no fever, even during the first days; she is plainly as well developed as any other child of her age; she is even more forward than her eldest sister was at two months' old. She is fresh, gay, lively, sensible to music; she tosses about her little arms when she hears the sound of the piano. Her skin is perfectly white, which proves, that there has not been the least absorption of bile.

This little girl performs all her functions properly; does not cry at night, and seeks the breast of her own accord, while her mother sleeps.

Defæcation takes place as in other children; but an elastic bougie is constantly kept in the artificial anus, less than the little finger, which prevents the contraction of this opening.

We regret we have not room for the insertion of some ingenious speculations by the author on this case, and some very judicious remarks on mal-conformations of the rectum, and the operations most suitable for each variety. We refer our readers to the original paper, in the *Gazette Medicale*, tom. iii. Nov. 28th, 1835. What gives additional value to this most interesting case is, that Mr. Crampton, in a clinical lecture on congenital defects in the conformation of the anus, delivered at the Meath Hospital on the 15th of this month, (April,) took occasion to allude particularly to this



paper. He stated, that the infant who had been the subject of the unique operation above described, was then in Dublin; that he had examined it most carefully, and he was enabled to confirm the exactness of M. Amussat's statement in every particular. The child was in perfect health, and so far from suffering any inconvenience from a want of power in retaining the fæces, Mr. C. found it necessary by an incision of about one-fourth of an inch in extent to divide a firm ligamentous-like ring, which surrounded the artificial anus, and contracted its area to such a degree, as to prevent the free discharge of the fæces. After the operation Mr. Crampton introduced a sponge tent of a sufficient size to effect the dilatation.

In describing the several operations for this defect, Mr. Crampton did not hesitate to give his decided testimony in favour of the one performed by M. Amussat in this case, considering it as the only one at all likely to have succeeded, the success which followed its execution being a solitary instance, and thus affording the best proof of the skill and judgment shewn in its adoption. The translator of M. Amussat's paper had the advantage of being present when Mr. Crampton operated, and is most happy to have it in his power to add his testimony to Mr. Crampton's, who, in the lecture alluded to, pronounced a just eulogium on M. Amussat's abilities as a surgeon, and said, that he considered the operation as one which must place the man who contrived and executed it, in the very highest rank among the surgeons of Europe.—J. H.

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#### MISCELLANEA.

*The Medico-Chirurgical Review.*—In the last number of the Medico-Chirurgical Review, we observe that its Editors have expressed their disapprobation of an article in our Journal for March, in which we alluded to those temptations incident to the conducting of a Medical Journal in a metropolis; and that they have supposed we were preferring a charge of venality against them.

We assure the Editors of the Medico-Chirurgical Review, that these observations were not intended to bear upon them. Even if the charge of venality were applicable, we, at least, have received no cause for preferring it. But we make no such accusation, and we regret that an observation of a general tendency should be so misconstrued, and made the grounds of personal allusion, always a useless as well as displeasing mode of argument. Let us in conclusion express our sincere hope, that that harmony so essential to the progress of truth may be restored, and that both works having for their object the furtherance of science, will continue in the mutual good understanding which has heretofore existed between them.

*Evening Meetings of the College of Physicians.*—It is a source of sincere gratification to the well-wishers of medicine in this country, to observe the increasing zeal and spirit with which all departments of the profession seem animated. In testimony of this, we may appeal to the success which has attended the different medical societies established in Dublin. To these we have already alluded. But as yet we have not spoken of the evening meetings of the College of Physicians, which have been held monthly for this and the last session—meetings which, whether we consider them as to their scientific interest, or the high social gratification they afford, are as useful as attractive. Much is due to the learned President, Doctor Osborne, under whose auspices these re-unions were commenced, and whose urbanity of manners, combined with his literary and scientific attainments, so well adapts him for that exalted hospitality which his situation calls him to discharge. We trust to be able to present our readers with an abstract of the various communications made at these meetings at no distinct period.

*Degree of Honorary Fellow conferred on Drs. Pritchard and Roget by the College of Physicians of Ireland.*—It is our gratifying duty to announce that the degree of Honorary Fellow has been conferred on Dr. Pritchard and also on Dr. Roget, by the King and Queen's College of Physicians in Ireland. Such a step reflects the highest honour on that learned body, who has thus shewn its sense of the obligations which science owes to these most distinguished of British physicians.

*Surgical Society of Ireland.*—The meetings of this Society continue with unabated interest. The following papers have been read since our last report.

On the Production of Opacity of the Cornea by Acetic Acid and Alkalies, by Mr. Alcock.

On certain Changes in Organic Elements, by Sir J. Murray.

On a peculiar Formation of the Femoral Artery, by Mr. Power.

On Displacement of the Heart from diminished Volume of the right Lung, by Dr. Stokes.

Two Cases of Pericarditis, by Mr. Roche.

A Description of a new Instrument adapted to Fractures of the lower Jaw, by Mr. L'Estrange.

On the Bruit de Cuir Neuf, as a Diagnostic Sign of Abdominal Disease, by Dr. Corrigan.

Report of the Queen's County Infirmary, by Dr. John Jacob; read by Professor Jacob.

A Case of Serous Discharge from the Scalp and Hair, by Mr. Bracken; read by Mr. Hargrave.

On the Effect of Alkalies in coagulating Albumen, by Mr. Alcock.

A Report of Cases of Tracheotomy, with Observations on some Points of the Physiology of the Larynx, by Mr. Porter.

## MEDICAL REFORM.

We perceive that the attention of the legislature, after a very long, expensive, and (practically) useless inquiry, is about to be *again* directed to the concerns of the medical profession. We confess that we are not very sanguine as to the result, inasmuch as *our* reformers do not seem to make a distinction between the evils that admit of being corrected by the legislature, and those that spring from causes over which it can exercise no control. We feel confident, that by far the greater number of these will be found to be connected with misjudgment or caprice, on the part of the many-headed monster yclep'd *the public*, and to whom the law is incapable of dictating. It is, no doubt, easy to divide the profession into *grades*, and to give them *names*, but by what means is the law to compel each practitioner to confine himself to his own department, so long as himself and his patient are willing, the one to pay and the other to be paid, for services rendered or supposed to be rendered? The advocates of this system, who draw their analogies from France, do not bear in mind that there the trials are *inquisitorial*, whilst *here* no man can be forced to give evidence against himself. This circumstance makes an immense difference as to the facility of conviction.

But laws of this kind are not merely inefficient, they are positively prejudicial. Well meant, no doubt; yet from the defect of the faculty of anticipation on the part of the legislators on the one hand, and the imperfection of that of verbal definition on the other, while they *fail* egregiously in meeting the *whole case* contemplated, they yet comprise what is *not* the case; and though their spirit is too weak, their letter is found too strong. Thus, in England, quacks and medical impostors of every kind revel with impunity, whilst a practitioner well educated in his profession, but not perhaps according to the very *form* that the regulations of the Apothecaries' Company required, is liable to fine and imprisonment, for sending a draught of castor oil and Daffy's elixir to his own patient!!

Acts of parliament are serious things. Their repeal or modification is always a matter of difficulty and delay. In the meantime their obligation is imperative and not to be evaded by Majesty itself. However oppressive or different in this operation from what was anticipated, the functionaries are still compelled to obey and enforce them; whilst the jobbers who probably exercised an underhand influence in this enactment, take care that the sword of justice, while out of the scabbard, shall be wielded with an unsparing hand, except so far as concerns those on whom the shaft of the law was *intended* to fall. Are not the extensive jurisdiction of courts of equity, and the latitude afforded to the verdicts of juries, in themselves proofs how far the operation of the best modelled laws must be varied and adapted to the circumstances of each individual case, before it can be rendered a blessing instead of a curse?

We have heard of questions asked before the last parliamentary committee, as to the legal *tests* of a recognized anatomical lecturer; among those, one was the number of *preparations* in his museum.



Did it never strike the committee that the owner of five hundred glass jars, a hogshead of whiskey, and a *subject* divided into five hundred pieces, would pass muster before their inspectors; whilst in their zeal to exclude (by *definition*) incompetent surgical lecturers, Sir Astley Cooper himself would have been left off the list?

At present every college makes, revokes, alters, and enforces its own laws. Its jurisdiction is applicable at discretion to the circumstance of the case, but yet limited as to the sphere of its operation. The University of Edinburgh for instance, legislates for its own graduates alone. To recusants, it can merely refuse its degree, and this is a loss to the candidate only so long as the university preserves its reputation; that is, so long as its laws and usages are based on sound principles, its diploma will be in demand. So much have prosperity and good conduct kept place in the case of public bodies, that it is well known that some of them, who relaxed the tests of medical competency for the purpose of *selling* their diplomas, have found themselves compelled at length, from *interested* motives, to imitate the rigour of their more conscientious brethren, and to make their letters testimonial *worth looking for*. We admit that this corrective of the corruption of public bodies is sometimes too slow in its operation.

The advantage of the existing system is, that it keeps pace instead of jarring with the only law that, be it good or bad, will prove decisive in the matter—public opinion. As far as this can be controlled by the qualifications of the aspirants for professional reputation, it is held in check by the value attached to diplomas, as tests of medical or surgical competency by the public. We repeat emphatically, that the *reputation* of the diploma is the only *compulsion* that can be exercised on public taste, for it is oftener taste than judgment that directs the selection of a medical attendant.

Supposing the scheme now so much lauded to be established, that of a board or faculty in London, or in the three metropolitan cities of the United Kingdom, and in five years every thing would be in confusion. The practitioners would be divided into two classes, those recognized *by law*, and graduates in medicine or surgery *not* thus recognized, but whom the public would yet, in many instances prefer, and who, accordingly, would be strong in purse, and relinquish without regret to their competitors, the merit of being *legally qualified*. We have not alluded to the contingency of the board proving not a jot purer than some of the colleges it might be intended to supersede, equal in corruption, and possessing increased power and patronage, without the check of competition.

There is another insurmountable objection to the *concentration* of boards of examiners, and the establishment of one or three faculties in substitution therefor; we mean the increase of the difficulty of making an examination a test of professional competency. Experience has proved, that in some medical bodies, where examinations by the same examiners are too numerous, but still far less so than according to the proposed faculty system, and especially where (as is always desirable) the examination is *public*, the style and even ques-



tions of the examiners can be calculated to such a certainty, that a candidate comparatively ignorant (for all practical purposes) may be made to answer *better* than the well informed. So much is this the case at present, that some of our boards require rather to be subdivided than concentrated into a common faculty, a measure for which no reason has been assigned, except that the *name* of one board or faculty conveys a *notion* of simplicity; and indeed the whole proposed system will be found to affect names rather than things. Thus we are told of "one uniform system of education throughout the empire;" the meaning of which is, that every candidate shall produce, at his examination, the same number and form of certificates; such pieces of parchment being granted, however, by teachers of every variety of competency, and testifying, in the *same words*, in the case of every imaginable degree of industry and idleness on the part of the possessor. Here is another instance of legislating for signs, instead of the thing signified.

We hear often of the *wants* of the public, and the *necessity* for a *new order* of general practitioners. We reply that there is every imaginable order of practitioners at present general and limited, men who are paid at every rate from a guinea to a sixpence a visit; that the supply of these is *far* beyond the demand, and that if our colleges turn out so many licentiates as seem to be required for the public good, it is because the public are too often indifferent as to medical education, leave the well-informed (would-be) practitioners without practice, and lavish their favours on the unqualified. Thus, we find in the same town myriads of the former class doing nothing, and numbers of the latter in comfortable practice. The effect, therefore, of establishing a *new* body of general practitioners would be in all probability, to take business *from* those already qualified, and to leave the unqualified nearly as they were before. We think it was a great error on the part of the committee, that no quacks or empirics were examined before them; they would then have learned, that empiricism is *more* expensive to the patient than legitimate practice, and that its prevalence is therefore no argument for cheapening either the latter, or medical education. We have known a *medical* student to write to London to an empiric for advice and medicine, and to be charged *five guineas* for the one communication! We *press* this point, because it has been urged, that if the public had well-informed practitioners within their reach, and within their *means*, empiricism would receive a check; we have proved the reverse — they *have* such resources, and yet they prefer empiricism at a *higher* cost. Medical legislation based on the principles that have been avowed would either prove a dead letter, or increase the very evils it is intended to rectify. Neither a concentrated faculty, nor a uniform education (*nominally*) prescribed by act of parliament; nor a legal constitution of general practitioners; nor a division of practitioners into *grades*, would alleviate *any* existing evil, whilst some would be aggravated thereby.

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PART I.  
ORIGINAL COMMUNICATIONS.

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ART. XIV.—*Cases of Rupture of the Urinary Bladder, with Remarks.* By ROBERT HARRISON, M.D., M. R. I. A. Professor of Anatomy and Physiology in the Royal College of Surgeons, and one of the Surgeons to the City of Dublin Hospital, &c.

As practical improvements in Medicine and Surgery so much depend on the results of experience, the recital of all cases which are either obscure in their nature, or dangerous in their issue, cannot fail to prove useful and interesting: it is almost natural that medical practitioners should feel greater pleasure, and therefore evince greater readiness in recording those instances in which some particular remedy, or some novel mode of treatment had proved successful, than those in which the resources of the healing art, either through their own insufficiency, or through the ignorance or inexperience of those who have administered them, have failed to afford that relief, for which

they were intended. Accounts, however, of unsuccessful cases, particularly when accompanied with "*post mortem*" results are of acknowledged utility, provided the symptoms during life have been faithfully recorded, and the appearances after death accurately reported; a statement of facts is thus afforded which is well calculated to enable the surgeon, when similar cases present themselves, to form an accurate diagnosis, and thereby to lay the best, indeed the only foundation, for attempting some other mode of treatment, or some other plan of proceeding, than that which had hitherto proved unavailing. Among the many serious accidents and diseases which come under the notice of the surgeon, none are more awful and melancholy than those which attack the young, the healthy, and the active, and either suddenly, or in the course of a few days, deprive of existence those who had previously been in the prime of life: among such occurrences, I think rupture of the urinary bladder from accident or injury holds a prominent place. Not very many examples of this lesion are to be found in medical writings, but they have almost all occurred in men in the full health and vigour of manhood, and I am not aware of any case on record having had a favourable termination; this latter circumstance may perhaps depend, partly on the want of sufficient diagnostic symptoms to enable the surgeon in all cases to affirm the true nature of the injury, whereby much time may have elapsed before any active treatment could have been adopted, and partly on the total insufficiency of all the remedial means which have been hitherto attempted. These facts, as well as some cases of this accident which have recently come under my own observation, have induced me to reflect on this class of injuries, and to offer a few remarks as to their pathology, diagnosis, and treatment: these I submit to the profession, not so much from any conviction of their importance, but rather in the hope of inducing to further examination and inquiry, those surgeons who are either engaged in anatomical pursuits, or who possess the invaluable opportunities for pathological research which extensive hospital practice affords.

Rupture of the hollow viscera from external violence, (I allude not to penetrating wounds,) are less frequent accidents than the superficial observer of the dead body might expect; it is true, that laceration of the brain occasionally occurs from great concussion of the head or trunk; the globe of the eye may be burst by a direct blow; but the heart, and other viscera of organic life, rarely suffer in this way; organic lesion or change of structure usually precedes, indeed it often leads to the rupture of any part of the circulatory apparatus: I have never seen the stomach broken by a blow or fall, though I have known death ensue from violence applied to the region of this viscus; the intestinal tube, considering its exposed position and great liability to injury, is wonderfully exempted from this effect of it; the jejunum, which from certain causes is the most exposed, has accordingly suffered thus more frequently than any of the other intestines; the pregnant uterus has been not unfrequently ruptured by blows, or some external violence, as also the urinary bladder: to the latter injury our present observations shall be directed.

The urinary bladder in its empty and contracted state, lies so deep in the male pelvis as to be almost perfectly secured against any injury or accident, except gun-shot wounds or surgical operations; when, however, this musculo-membranous pouch becomes distended, it rises more or less out of this cavity, having previously occupied the greater portion of it, and having excluded from it all the abdominal viscera, except the rectum and the peritoneal cul de sac; it then presses forward against the abdominal parietes, and stands in a position much exposed to external injury; in this state also the tunics of this viscus are tense, expanded, and thin, conditions which are obviously favourable to a rupture of their tissue. This lesion may occur to the distended bladder, from a variety of causes, first, a penetrating wound; secondly, external violence applied directly to the hypogastric region, such as a blow or a fall on this part, or the heavy pressure of a cart or carriage-wheel



passing across it ; thirdly, a general concussion of the whole frame, such as a fall from a height without any direct force impinging on the vesical region itself ; fourthly, without any external injury, but merely from violent exertion and repeated straining to evacuate the bladder when over-distended in consequence of some obstruction to the flow of urine, or during the violent efforts of parturition ; and lastly, it sometimes yields by gangrene when it has been long in a state of forced distention, or when being in a state of plenitude, it is subjected to the long continued pressure of any adjacent viscus, as of the uterus, during protracted labour, or of the same organ when during the earlier periods of utero-gestation, it falls into a retroverted state, as in those cases which have been so distinctly recorded by Dr. William Hunter, *Med. Obs. and Inq.* vol. iv. and v. Lond. 1771.

When the over-distended bladder is ruptured during the efforts of violent straining, without having undergone any previous gangrenous change, we expect that the lesion should occur in that situation where it is covered by peritoneum, but when gangrene precedes the rupture, that this change may occur in any situation, and of course more particularly in whatever part pressure has been long applied. When the bladder is distended in the male from retention of urine, rupture from straining to empty it, is a very rare occurrence: Mr. Brodie (in his *Lectures on the Diseases of the Urinary Organs*, page 12,) mentions a case which is probably of this nature ; I say probably, as the *post mortem* appearances have not been accurately stated ; “ a man who had retention of urine and was straining violently to evacuate it, felt something give way, and suddenly exclaimed ‘ his bladder had burst into his belly,’ dissection proved that the poor fellow’s words were true.” In some cases, however, we sometimes find that the anterior part of the bladder gives way during the straining to overcome whatever obstacle obstructs the flow of urine. Sir Everard Home (in his *Essay on Stricture*, vol. ii., p. 240,) relates the case of a man who had

suffered under retention of urine for several days, and on one occasion felt the sensation of the upper part of the bladder having given way: in four or five days afterwards he died, and on dissection a curious appearance presented: the abdomen being opened, a considerable quantity of urine was found in the peritoneum, which membrane was in a state of high inflammation, but on looking for an opening in the bladder, no direct communication could be found between this organ and the peritoneum; but it soon appeared "that the bladder had given way at the anterior part of its fundus immediately above the pubis, the urine had thence ascended between the peritoneum and the abdominal muscles as high as the umbilicus, at which place this membrane had given way, and the urine entered the abdominal cavity; the opening through the mucous coat of the bladder was circular and larger than a common goose quill, but that in the muscular coat was about an inch in diameter:" from the account of this case it may appear doubtful whether the opening in the bladder was the effect of a sudden laceration caused by muscular exertions, or whether there might not have been some preceding ulcerative or gangrenous affection in this particular spot, which thus disposed it to yield to the violent contraction of the abdominal muscles, in some of those paroxysms of straining with which sufferers under retention of urine are so frequently attacked. In most of those instances, however, of retention of urine in the male, particularly as the effect of stricture, in which effusion of urine has taken place, the rupture which has occurred has been not of the bladder itself, but of the urethra immediately behind the stricture, or in the immediate vicinity of the prostate gland, and in such cases death has been caused by the diffused inflammation, suppuration and sloughing of the cellular membrane, which seriously engage the constitution, and enfeeble, depress, and exhaust the vital powers in the same way as mortification from any other cause, or in any other situation.

When the urinary bladder in the female has been over-dis-

tended, the retention having been caused by the pressure of the head of the child near the urethral orifice, and that this viscus has given way, it seems doubtful whether the rupture is merely the effect of paroxysms of muscular straining, or whether there may not have been some preceding ulcerative or gangrenous change in a particular part of the bladder, and which therefore may easily yield to those exertions; I am inclined to adopt the latter opinion, not only when the retention of urine has been induced by the cause above stated, but also when it is the effect of that malposition of the uterus, denominated retroversion of that organ.

When the distended bladder in the male has been ruptured in consequence of a fall or blow upon the hypogastric region, or of a general concussion, that portion of it which is covered by peritoneum has been, I believe, very generally found to have been the seat of rupture, the urine has consequently become effused into the abdomen, and the patient has sunk under peritonitis. I shall now state the particulars of two such cases, and then offer a few remarks on the pathology and treatment of this not very unfrequent lesion of the bladder; and I shall afterwards notice a case of another injury of the same organ, which in a pathological point of view forms an interesting contrast to the former.

CASE 1.—Gibson, a bricklayer, (ætatis anni 35,) remarkably stout and healthy; had been drinking on Saturday night with several persons; after some time he and others of the party becoming intoxicated, quarrelled, a scuffle ensued, Gibson was thrown, and his opponent fell across the lower part of his abdomen; Gibson affirmed subsequently that he had been kicked in that situation; this latter assertion, however, was denied by some of the spectators, so that some doubt exists as to this part of the statement, though none whatever as to the former.—Gibson at the moment “felt excessive pain at the bottom of his belly,” became sick and so weak as to be scarcely able to stand; he soon, however, rallied and made his way home

without assistance ; in the course of proceeding homewards he endeavoured to pass urine, as he felt and knew that " he was full of it," but he was unable to pass a drop. He spent a restless night, dosed occasionally, and made frequent ineffectual efforts to pass urine ; the following morning, however, he felt somewhat better, and rose as usual to breakfast, but being still unable to make water, and feeling great desire at times to do so, and suffering much pain in the abdomen, he determined to apply for medical relief ; he accordingly walked into town, a distance of nearly three miles, in company with a friend, to a surgeon under whose care he had formerly been ; the surgeon introduced the catheter and withdrew about five or six ounces of urine ; he was somewhat but not much relieved. He again walked home, and passed the remainder of the day in a very uncomfortable state, but did not go to bed, and again drank, moderately however, in the evening ; he had frequent straining to make water, and sometimes succeeded in passing a table spoonful ; he spent Sunday night in a very uneasy state, but arose Monday morning at his usual hour and went to work, (building a stone wall,) returned to breakfast, and again went to work ; but about 12 o'clock he felt so sick, and such pain in the belly, that to use his own words " his heart was too weak to let him work any longer ;" he therefore determined on again visiting his surgeon ; he then took a glass of whiskey, and again walked into town. He was disappointed at not finding his surgeon at home : he thought he felt himself a little better, and therefore did not apply to another, but proceeded home again ; both going and coming he was frequently obliged to make an effort to pass urine, and sometimes he would pass nearly half a glassful ; on his way home, however, he felt so sick and weak, that he thought he should drop ; he was therefore obliged to take a car. In the evening he sent in for his surgeon, who on seeing him, passed a catheter and drew off only a few ounces of urine ; he also bled him, and directed a warm bath, and some aperient medicine.

Tuesday morning he felt somewhat better, had passed a



little urine at frequent intervals; he rose early and walked about part of the day: this night, however, all his sufferings were so increased, that he sent in early on Wednesday morning for his surgeon; unfortunately he was from home, and at a very late hour in the day I was called on to visit him, and found him in a state of great pain and anxiety to pass urine; the abdomen felt generally full, but not as in ordinary retention of urine; great pain in the hypogastric region and perineum; frequent desire to go to stool, but has passed nothing solid since Sunday night; the tenesmus and straining to pass urine occur at short intervals, and he is thrown into a paroxysm of excruciating torture; the countenance is very anxious but not much sunk; the pulse is very quick and hard; has vomited twice, and is very thirsty; I introduced a full sized silver catheter, and was much dissatisfied at finding only a few drops of urine escape; I withdrew this instrument and then passed a small sized gum elastic one, and also introduced my finger into the rectum, I then drew off nearly a quart of urine; he expressed himself as somewhat relieved, his belly felt less tense; however it continued painful, and with diffused fulness; he vomited and appeared very weak after the operation, which occupied a considerable time. I remained with him for about two hours; his strength and spirits rallied considerably, and I bled him largely, and then ordered forty leeches to the abdomen, and fomentations every third hour.

R Calomelanos. ℥j. Opii. gr. vj. ʒ divide in Pil. x. capiat unam Omni secunda horâ. Enema purgans statim, rept<sup>r</sup>. omni quartâ hora.

I felt very confident that this was a case of ruptured bladder, and therefore gave a very guarded and gloomy prognosis to his friends.

The next morning, (Thursday,)—for some hours after I left him he enjoyed repose; had passed on two occasions about a wine glass of urine, but about midnight all his sufferings were renewed; great pain in the perineum and anus; frequent tenes-

mus; violent urgent desire to pass urine, with ineffectual straining; vomiting excited whenever his insatiable thirst was relieved by drink; this morning the countenance is much more sunk, the abdomen full, but with little tenderness except towards the hypogastrium. I passed the catheter and removed only one wine glass of clear urine which flowed off without any impetus, he begged I would not pass my finger into the rectum as he felt so very sore in that situation: I secured the catheter in the bladder; as he had no motion from the bowels the injections were directed to be repeated, also the warm fomentations: the pills to be continued.

Friday, the catheter has continued in the urethra ever since, and a drop of clear urine falls from it into a cup about every minute; the pain in the hypogastric region is very intense, but confined to that part; the rest of the abdomen is free from it, and can bear pressure; has had but little vomiting; has taken a good deal of drink; the bowels have not been opened, and he is teased with frequent tenesmus, and straining to pass urine; the pulse is small and weak, countenance sunk, the gums are not as yet effected by the mercury:—Continuantur omnia, also a little chicken broth. I shall abbreviate the remaining portion of this man's history, and merely add; that he gradually sunk, with very little increase of pain, the urinary discharge became more scanty, and on Sunday evening, just eight days from the hour of the first accident, he expired.

On Monday about two o'clock I examined the body. On opening the abdomen, I was struck with the healthy appearance of all the viscera in the epigastric and umbilical regions; the convolutions of the small intestines were much distended with flatus, and shewed slight marks of inflammation; their surface felt clammy, and they were agglutinated here and there by soft adhesions; on the whole, however, the traces of inflammation were not those of a very severe or acute form, there was no fluid in the abdomen; the pelvic region presented a singular appearance, the sigmoid flexure of the colon, the commencement of

the rectum, some of the iliac convolutions and the bladder were all closely agglutinated by one smooth, yellowish coating of lymph, so that the cavity of the pelvis was perfectly closed or separated from that of the abdomen; on pressing this septum, fluctuation was plainly felt; these adhesions being broken through, the cavity of the pelvis, that is, the peritoneal cul de sac, was then found filled with urine, free from any bloody tinge, but intermingled with flakes or shreds of coagulable lymph; there was near a quart of fluid in this situation; the posterior surface of the bladder was now seen with an oblique fissure through it, about an inch and a half in length; the edges were thickened and slightly adhering to each other, so that I was unable to press any of the pelvic fluid into the bladder. When the cavity of the pelvis was cleared of all the fluid it contained, the whole surface was found coated over with a thick layer of lymph, so as to present a smooth homogeneous appearance, not unlike the cavity of a very large abscess; this was peculiarly thick inferiorly; and in the most depending part just in front of the rectum, there was a blackish appearance and a soft feel as if some gangrenous change had commenced. On removing the pelvic viscera from the subject, no other injury was observable; the interior of the bladder was normal, and presented no trace of inflammation; between the bladder and rectum there was great congestion and cellular condensation; the cul de sac of the peritoneum descended very close to the prostate and was intimately connected to the rectum; the latter intestine however appeared perfectly healthy.

CASE II.—The following case, though similar in most of the essential characters to the last, may be contrasted with it, as being as remarkable for the acute and urgent nature of the symptoms, and the rapidity of their progress, as was the case of Gibson, for the comparatively little pain endured for the first thirty-six hours, and for the slow progress of the disease to its fatal termination.

Michael Kelly, ætatis anni 27, by trade a carpenter, long

of very intemperate habits, and which had latterly impaired his general health. This man was admitted into hospital about twelve o'clock, on Wednesday the 30th of December, labouring under the following complaints, and presenting the following symptoms: most acute pain in the lower part of the abdomen; urgent desire to pass urine, but a total inability to do so; cannot lie down in bed, but sits with his knees drawn up towards his chin; there is frequent retching and vomiting; surface of the body cold; strong tendency to shiver; countenance sunk, and expressive of much anxiety and suffering; great prostration of strength; the pulse is quick, small, and feeble. He states that during part of Monday and the entire of Tuesday he had been drinking in company with some friends; that on Tuesday night (last night) about ten o'clock, he was desirous of leaving his party and returning home; to this there were objections, and one person in particular resisted his leaving the room; a scuffle ensued, Kelly fell, and his irritated opponent kicked him in the lower part of the belly. On receipt of this blow he became suddenly faint, and felt as if something had been burst within him; he vomited, and an acute pain set in, which has never since remitted. He left the room with great difficulty on account of the sickness, pain, and weakness; both then, and repeatedly during the night, he made many ineffectual efforts to pass urine. The entire of the night was passed in great agony, the pain being chiefly in the hypogastrium and extending towards the loins; he could not sit, lie, or stand, or remain for half an hour in any one posture, except that of half sitting in bed as before described; his thirst has been excessive, but every drink he has taken has been ejected almost immediately. The abdomen feels hard, but not much swollen; fluctuation cannot be detected on account of the resistance of the muscles, and there is no distinct fulness in the hypogastric region. I lost no time in introducing into the bladder a moderate sized gum elastic catheter: some slight difficulty attended this, owing to the position in which he remained, nor



indeed did it appear to pass freely into a cavity, as in ordinary cases of retention of urine, but rather as if forced into a contracted bladder ; at first a few drops only of urine escaped ; it soon began to flow more freely, but still very slowly ; it appeared as if the instrument merely overflowed : the fluid was not discharged in a full stream, or with the usual jet ; pressure on the abdomen, scarcely increased the impetus or size of the current, nor could he endure it to be applied firmly for any time ; during this evacuation he stated that he felt a little relieved. By some assistance and persuasion I induced him to change his posture, and two persons supported him while he stood semi-erect by the bed side, in expectation that the urine might flow more freely. He could not however continue thus for more than a minute ; his stomach became sick ; he shivered, felt as if about to faint, and could no longer support himself ; he was therefore returned to bed ; a little cinnamon water and sal volatile were given to him, and he was then supported at the bed-side in the sitting posture, and in this state he remained for a quarter of an hour, the urine continuing to flow with but little change in the size or strength of the stream, except occasionally by some accidental change in the direction of the catheter, or as I soon ascertained by pressing the instrument far into the bladder, as if against its posterior wall, the fluid would escape at times in a full stream. In about half an hour from the first introduction of the instrument, the urine ceased to flow ; very nearly a quart had been drawn off ; it was deeply tinged with blood, although it was tolerably clear. Notwithstanding the discharge of so much fluid, he was comparatively little relieved ; he soon fell into a violent rigor, his pulse sunk very much, and he presented many of the symptoms of approaching dissolution. Warm cordial stimulants were administered ; he was put into a warm bed ; bottles of hot water applied to his feet, and fomentations to the abdomen. The diagnosis which was made and taken down at this time was, "rupture of the posterior surface of the bladder, effusion of

urine into the peritoneum, and consequent peritonitis ; prognosis fatal ;" ordered, the above-mentioned directions to be continued until the pulse should rise, and the surface become warm ; and if in the course of two hours re-action should have taken place, and if the pain continued very severe, venesection ad deliquium ; also the catheter to be re-introduced, should he feel the least desire to pass urine without the ability to do so.

R Calomelanos, gr. x. opii gr. iv.  $\mathfrak{m}$  Divide in pilulas sex sumat unam omni horâ.

Five o'clock, P. M. The catheter had been passed about an hour since, at the urgent desire of the patient ; about a wine glass of urine was drawn off of the same red tinge ; was bled ad deliquium ; the vomiting has been very frequent ; the pills have been rejected ; the thirst is very urgent, cold water is his favourite drink, but it is no sooner swallowed than it is returned ; the vomiting is attended with violent straining, and great aggravation of pain ; much bilious matter is discharged. He complains of great pain, not only in the hypogastric region, but also in perineo, and about the anus, yet there is no swelling about these parts, or pain, or tenderness on pressure ; continues in the same half-sitting posture, with the knees drawn up, but is very restless, writhing in agony, and supplicating relief ; pulse quick, hard, and small ; ordered, bleeding from the arm to be repeated ad deliquium, and in two hours afterwards thirty leeches to the abdomen ; the bleeding to be encouraged by hot fomentations. Calomel to be continued in two grain doses every hour without the opium.

R Tinct. opii acet. gt. x. aqua cinnamoni  $\mathfrak{z}$ i. syrupi  $\mathfrak{z}$ ss.  $\mathfrak{m}$  ft. haustus om. semihora sumendus. An aperient Terebinthinate enema without delay.

Ten o'Clock. Enema operated once fully ; no urine discharged ; local and general bleeding produced much weakness. Skin is bathed in perspiration ; pulse is quick, hard, and small like a thread ; countenance not improved ; posture the same ; pain

in the abdomen, and perineum not relieved ; complained of enema increasing his suffering in the latter region severely ; surface of the abdomen very hard ; the lines of the various muscles are rigid and distinct ; the pain most intense in hypogastrio. I again introduced the catheter, although he expressed no desire to pass urine ; about a wine glass full was discharged, which was tolerably clear ; he still complained of the pain about the anus, and on that account objected to a repetition of the enema ; introducing the finger into the rectum I experienced unusual resistance, not merely from the sphincter muscles, but from the close contraction of the tube above these ; and on pressing the finger forwards, very acute pain was excited. I directed a fresh bleeding from the arm ad deliquium, and a pill of one grain of the extract of opium every second hour ; the calomel to be continued in the alternate hours, and a mild aperient enema every fourth hour, unless some fæcal evacuation should occur.

Thursday morning, eight o'clock. Never slept during the entire night ; called for the catheter very urgently about one o'clock ; it was passed, and drew off about a wine glass full of clear urine, but without any relief ; had two enemata during the night ; they were each soon rejected, without any fæcal addition ; he states they gave him much pain and made him worse ; vomiting has been frequent ; a considerable quantity of dark bilious fluid with fœtid smell has been discharged ; pain in the abdomen is not so intense, and he can now bear pressure better, except in the very region of the bladder ; he can now lie in the horizontal posture : when turned on the side an indistinct fluctuation can be felt in the depending parts of the cavity ; but superiorly there is a tympanitic sensation when the abdomen is gently struck. He complains of excessive weakness ; is restless and tossing, and frequently making efforts to leave the bed ; countenance sunk ; pulse weak and thread-like ; is very anxious for some porter or ale. Catheter was now passed against his own desire, about a table spoonful only of turbid but not bloody

urine was drawn off. Ordered, a pint of porter during the day in divided doses ; blister to the epigastrium ; enema to be repeated.

Eight o'clock, P.M. Expresses himself to be somewhat easier ; can bear pressure better, but pain in perineo is more severe ; has had no evacuation from the bowels ; had one enema, but objected to a repetition in consequence of its increasing the pain in the anal region. The catheter was passed about three o'clock, at his own request ; about a wine-glass full of clear urine was withdrawn. I again passed the instrument, only a table-spoon full of clear fluid flowed off.

Friday morning, eight o'clock. The pupil reports that he passed a very restless night ; about midnight he raved, and had a slight convulsion ; vomited frequently ; did not desire the catheter. His countenance is ghastly ; voice feeble ; manner sunk and desponding ; pulse small and weak ; hiccough frequent ; pain not increased on pressure ; still complains of it about the anus ; is evidently moriturus.

About two o'clock this day, after frequent feeble efforts to vomit, and ineffectual straining at the night-chair, which he had frequently attempted throughout this day, at each time getting out of bed for the purpose, he threw himself into bed, and instantly expired with a loud groan, about sixty-four hours from the first receipt of the injury.

In about eight hours after death, the body was examined in the presence of several students. Abdomen felt tumid and tympanitic. On raising the integuments from the inferior portion of the recti muscles, the cellular tissue appeared much ecchymosed in the situation of the injury which he was reported to have received. On opening the cavity of the peritoneum, the intestines protruded in large quantity, so distended were they with flatus ; their surface felt clammy, and was preternaturally vascular ; the convolutions here and there were adhering together by soft slight adhesions ; there was a small quantity of bloody fluid containing some flakes of lymph in the lumbar regions ; on collecting



this, it was found to be urine similar to that which was first drawn off by the catheter from the bladder. The marks of inflammation were much more evident towards the hypogastric region of the abdomen ; about the upper part of the pelvis, the small intestines, the upper portion of the rectum, and the surrounding peritoneum, were all so glued together, that the hand could not pass into the pelvic cavity without breaking asunder these adhesions. The peritoneum in all this region was coated over with thick adhesive lymph. When some of these adhesions were detached, a considerable quantity of the same bloody urinous fluid (about one pint and a half) was found collected in the cul de sac of the peritoneum ; the posterior surface of the bladder was now apparent ; in it there was a transverse rent about an inch and a half in length through all its tunics, and it extended through the peritoneal covering even to a still greater extent. The sides of this cleft were in apposition, but not at all adhering, the mucous membrane of the bladder projected slightly on either edge ; the bladder was not much contracted, its upper extremity being a little above the symphysis pubis. The pelvis being emptied of all the contained fluid, the peritoneum was found in a state of high inflammation, at the lower part of the cul de sac in particular ; here the adhesive lymph was very thick, and in one spot appeared blackish, as if in a state of incipient gangrene ; the peritoneum covering the bladder itself was not so intensely inflamed as that of the rectum, or in particular as the extremity of the cul de sac itself. The interior of the bladder was not at all inflamed, the mucous membrane being pale and thin, and its numerous rugæ soft as natural ; in the vicinity of the rent, it was slightly thickened from submucous effusion. On removing the pelvic viscera, and making a careful examination as to their condition, they were all found uninjured, but great vascularity and congestion existed about the vesiculæ seminales ; between the rectum and bladder a slight purulent infiltration was observable in the cellular tissue, immediately below the cul de sac, evidently demonstrat-

ing the intensity of the inflammatory action in the latter, and the tendency to extend in that direction, or had life continued, to open and discharge its irritating contents by the extension of the suppurative process either towards the rectum or the perineum. These facts or appearances clearly accounted for the acute pain which the patient never lost in the anal region. About two table-spoons full of clear urine lay in the bladder; from this last circumstance I may infer, that in the early operations of passing the catheter, the instrument passed through the opening in the bladder, so as to draw off some of the fluid contained in the peritoneum, or what I think most probable, the catheter being pressed strongly, as it was on some occasions, displaced the edges of the rent, so as to open the latter and thereby to allow some of the peritoneal fluid to flow off. The accumulation in the pelvis did not rise so high as the wound in the bladder, and therefore could not discharge itself into it unless some particular pressure had been exerted for that purpose; neither could the operation of paracentesis, if performed in any of the usually selected regions of the abdomen, have accomplished this object.

My own experience would lead me to suspect, that rupture of the urinary bladder from direct violence, or as an effect of general concussion, is not a very unfrequent accident, although comparatively few examples have been recorded in medical writings.

Bonet mentions the case of "a merchant about thirty years of age, who, as he was leaving the room for the purpose of passing water, by some accident fell into an area about fifteen feet deep; he was taken up senseless: after some time he complained of great pain in the abdomen, also about the xiphoid cartilage. The abdomen soon became swollen, and all his sufferings were augmented; a few drops only of urine were voided at each attempt. As he was hourly losing strength, and as fluctuation was distinct in the abdomen, paracentesis of this cavity was advised and performed, but blood only flowed through the trochar.

He died in forty-two hours from the time of the accident. On dissection, the abdomen was found to contain a large quantity of blood, and an opening was observed in the back part of the bladder, large enough to admit a hen's egg; the right kidney was inflamed, and the lumbar and iliac regions were ecchymosed: the blood had proceeded from some vessels in the pelvis which had been opened by the laceration of the bladder."—*Sepul. Anat. Lib. 3, Sect. 24, Obs. 12.*

It is doubtful whether the vesical rupture in the foregoing case is to be considered as the effect of concussion only, for Bonet thinks it probable that he struck his side against the edge of some vessels among which he fell. It does not appear that any efforts had been made by nature in this case towards circumscribing the effused fluid, or repairing the vesical breach; the great effusion of blood most probably interfered with any process for that purpose.

The following case by Boyer is an example of vesical rupture from direct violence to the abdomen: "An intoxicated man was knocked down in a quarrel, and received several blows and kicks in the belly: during the first three days after the accident he passed no urine; the abdomen became swollen and painful; he had also pain about the præcordia: he died on the fifth day. Ecchymosed and livid spots were found in different parts of the abdominal parietes; the abdomen contained fifteen pints of urine; in the upper fundus of the bladder there was a round hole with sphacelated edges."—*Maladies Chirur. T. 9, p. 61.*

Boyer remarks on this case, that no relief can be afforded in this class of injuries; the paracentesis of the abdomen, and retaining a catheter in the bladder are the only surgical efforts that can be attempted; but before paracentesis can be performed, the fatal peritonitis has sealed the doom of the patient. In this opinion I do not concur to the full extent.

The following case by Mr. Charles Montague, which is not, however, very accurately reported, is an example of vesical

rupture, occasioned by the individual falling and striking the abdomen against a hard substance: "A man aged twenty-eight years, fell upon his belly on the edge of a hatchway; fainted, and in a few hours complained of inability to pass urine, having an urgent desire to do so; had frequent vomiting and great pain. The following morning the catheter drew off about six ounces of urine, but without relief; in the evening he had a warm bath, in which he passed a large quantity of urine, and felt much relieved. The symptoms increased in urgency; he sunk and died on the fifth day. On dissection, the peritoneum was found inflamed, the intestines distended with flatus, and a very large opening existed in the upper fundus of the bladder." —*Med. Commun. London*, 1790, vol. ii. p. 284.

This case presents an example of one symptom which is often present, namely, that the violent efforts to pass urine are frequently wholly unsuccessful, and yet in some time after, when the patient is perhaps at stool, or in a warm bath, he may pass several ounces.

The two following cases are by Mr. Cusack; the first is very similar to those recorded in this paper. It is, however, remarkable, as having had the operation of paracentesis performed, but unsuccessfully, as in the case of Bonet. "A man twenty-six years of age, leaving the theatre in order to make water, struck the hypogastric region with great violence against one of the benches: he felt at the moment as if his heart had burst, fainted, and soon suffered great pain, which continued during the night, without any remission. The following day the catheter was introduced, as he had most urgent desire to pass urine but could not; only a few drops flowed, and without any stream, but as if the instrument merely overflowed. The following day the instrument was again passed; no urine flowed at first, but changing its direction, and by the pressure of the finger in ano about three pints were evacuated. On the third day, as all the symptoms continued unabated, it was proposed to puncture the abdomen: this was done in the linea alba, mid-



way between the umbilicus and pubis; a large quantity of clear urine escaped, and at the same time it flowed freely from a catheter introduced into the urethra. He felt much relieved; this was only temporary, all the distressing symptoms increased; he complained very much of frequent seminal emissions: he died delirious on the eighth day from the accident. On dissection, there were found but slight marks of inflammation in the epigastric region but in the hypogastric they were intense, the intestines being there glued together into one mass; no urine was seen at first, but on breaking these adhesions and raising up the intestines, about a pint full was sponged out from between the rectum and bladder; the pelvic portion of the peritoneum was completely coated with lymph; the bladder was contracted and empty; the rupture about an inch in extent, was in its posterior part, and right side and in an oblique direction."

The following case is an example of this lesion of the bladder, occurring as the effect of general concussion "A man, aged 30 years, had been sitting on the battlement of a bridge, and had fallen over into a garden, from a height of about 20 feet; he had made water some time previously, and had no desire to do so again at the time he fell. He made no complaint of any urinary distress at first, but had great pain in the back and loins, also a peculiar sensation about the præcordia. Soon after being placed in bed, he made ineffectual efforts to pass urine; the catheter drew off about two ounces. On the second day the abdomen became tense and painful; all the symptoms of peritonitis increased, and on the eighth day he expired.

"Dissection exhibited the usual effects of active peritonitis; a considerable quantity of urine lay in the abdomen; the fissure in the back of the bladder was more transverse than in the former case, but nearly in the same situation; the mucous coat protruded between the lips, and was more vascular than natural."—*Dublin Hosp. Reports*, 1818. vol. ii. p. 312.

The following case which was under the care of Dupuytren,

is interesting, as it exhibits the progress which nature had made towards a perfect cure, (as in the case of Gibson,) and is therefore calculated to inspire some hope in these severe injuries, notwithstanding the opinion of Boyer to the contrary. "A strong man aged 30 years, had been drinking the whole day in a tavern; on coming out he quarrelled with his comrades, who knocked him down and kicked him over the pubes; he felt instantaneous and severe pain, and was carried to the Hotel Dieu. Dupuytren suspected that the bladder was ruptured, and by moving the catheter in different directions he conjectured that the rupture was at the upper part. The treatment was very carefully conducted, and after four or five days he became so much better and his appetite so good, that he indulged it to excess, notwithstanding the cautions he had received to the contrary; in consequence, all his bad symptoms returned, and he died on the seventh day. Dissection exhibited the effects of inflammation in the hypogastric region; adhesions had formed between the abdominal parietes and the bladder, the sides of the latter and the adjacent viscera were all agglutinated, so that a sort of pouch was formed which was far advanced in organization, whereby the urine was circumscribed, and effusion to any further distance prevented. Dupuytren and those who were present at the autopsy, could not fail to notice the admirable provision which nature had thus attempted towards saving the life of this patient, and whose death was rather to be attributed to his own indiscretion in indulging his appetite, than to the vesical injury."—*Archives Generales*, June 1834, p. 294.

If the following case can be considered really one of ruptured bladder, as it is stated to be, it would exemplify the completion of that process, which was so far advanced in the last case, as also in that of Gibson: it is recorded by Mr. Johnstone. "A gentleman had laboured for some time under urinary distress, and ultimately died of retention of urine: the bladder was found diseased; there was a circular hole of an

inch and a half in extent in its left side, the edges of which were smooth, without any appearance of rent or laceration; this opening led into a cavity in the pelvis, which lodged a considerable quantity of urine; this cavity had no power of contraction, hence, the accumulation which finally ended in fatal ischuria."—*Mem. of the Med. Soc. of London*, 1773, vol. iii. p. 543.

I cannot, however, regard this case as an instance of rupture of the bladder, as the account is entitled in the memoir, for there is no mention of any previous injury or accident; it is rather, I conceive, an example of the hernia of the lining membrane of this organ.

The following case resembles in many respects that of Gibson, and that in the *Archives Generales*: "Two men having quarrelled in a café, one seized, threw the other, and kicked him in the belly, the latter died in seven days. A medico-legal examination was held by Guersent and Denis: the deceased was between thirty and forty years of age; the abdomen contained much sanguineous fluid; in the lesser pelvis inflammation had existed, and had united, by adhesions, the bladder to the several adjacent intestines. In the upper and posterior part of the bladder, there was a rent two inches in length; the rupture was through only in the lower part, in the upper half it did not involve the mucous membrane; the lips of the laceration were indented, and covered by a false membrane; the mucous membrane of the bladder was swollen and inflamed about the cervix; there were no marks of ecchymosis in the abdominal parietes."—*Annales d'Hygiene et de Medicine Legall*, No. 29.

The *London Medical Gazette* for April 9th, 1836, in noticing the last mentioned case, mentions the particulars of another also: a man was kicked very severely in the belly, and died on the fifth day; no external mark of injury was observable in the abdominal parietes; but the bladder was found ruptured in the usual situation.

From this brief abstract of these several cases of rupture of the urinary bladder, we cannot fail to perceive a striking similarity between them in several particulars; in the first place, the situation or the part of the organ in which the lesion has occurred, has been nearly the same in all; in the next place, these accidents have happened to men who have been almost in the prime of life; and lastly, in all the result has been fatal, and the "*post mortem*" appearances have been in the essential circumstances nearly identical, differing little more than in their degrees of intensity.

The fact, that when this lesion of the urinary bladder occurs as the consequence of a blow, or general concussion, it should always be found in that part of the organ which is covered by the serous membrane, may admit of the following explanation: the several tunics of the bladder allow of considerable distension, but least of all the peritoneal; when therefore the bladder becomes fully distended, and is then subjected to any sudden or violent compressing force, this tunic, which is then tense and comparatively unyielding, will crack, while the subjacent tunics which are connected to it will be torn along with it, whereas in other situations, where cellular tissue occupies the place of the serous membrane, the coats of the bladder will yield considerably before they give way, or admit of laceration: we shall consider presently why the lesion always occurs in the posterior region of the bladder, and not in the superior or lateral regions, where the peritoneal covering also exists.

It appears at first view singular, that we find no examples of this injury in the female or the boy: it may no doubt be urged that in the former the violence necessary to produce this lesion is rare, in comparison to the liability of man; this however cannot be affirmed in respect to children and boys, whose habits are so active, and exercises and amusements so very violent and rough. Again, too, in the female, in the lower walks of life especially, it must be admitted with regret, that



they do frequently receive abuse and injury not only equal to that which cause this injury in man, but even sufficient to rupture the pregnant uterus ; nor can it be advanced as a mode of accounting for the comparative immunity of the female bladder from rupture, that this organ is not so liable to distension as in the male, because the fact is notoriously otherwise ; indeed the organ itself appears in some measure adapted to admit of such distension. There must then be some reason why the adult male should be more frequently the subject of this accident than the female or the youth. It may, perhaps, assist this inquiry, if we first consider how the bladder itself is ruptured, and why it should be in all cases in its posterior region that the rent occurs. If we look on the bladder in the male pelvis, when only moderately distended, we shall find that it occupies the greater portion of this cavity, and that with the exception of the rectum, there are few if any of the intestinal convolutions in this region, as is the case when the urinary reservoir is empty and contracted ; in the full state of the bladder, if it be pushed backwards with a very gentle force, it will be found to press against the projecting promontory of the sacrum. It appears to me that to this latter circumstance is to be attributed, in a great degree, the uniformity of the situation in which this organ yields or cracks, even in a moderately distended state, when subjected to a sudden compressing force. In opposition to this, it may be said that the vesical rent is found in a lower situation in the pelvis, than the level of the sacral prominence. I admit that in the examples of this accident which I have examined, it does appear lower, and therefore not opposite to this projection ; but in reply I should observe, that allowance must be made for the altered position of the bladder, in consequence of its altered state, and that although on examination after death the ruptured part may appear lower than the brain of the pelvis, yet it is to be remembered that the bladder being then empty, and partially contracted is in an inferior position, and especially as regards the lacerated spot, to that which it held when fully distended. In the female,

the distended bladder not only does not occupy so much of the pelvis as in man, in consequence of the greater size of this cavity, nor does it incline so much backwards as in the male, on the contrary it inclines more forwards and enlarges more in the transverse direction; while again, the uterus and its lateral broad folds of peritoneum, may assist to break the shock of any external violence applied to the hypogastric region, and so prevent the direct concussion of the bladder against the sacral promontory.

The comparative unfrequency of this injury in children and in boys, is not a little remarkable; the fact, however, may perhaps admit of some explanation. At this age the bladder is seldom in a state of great distension; its greater irritability, as well as the absence of that restraint on the feelings of delicacy, which in more advanced life, often prevent the individual complying with the first desire to evacuate this organ; as also at this age the exciting cause, namely, indulgence in long continued drinking not being present, may all account for the little liability to the bladder attaining any considerable degree of distension in the earlier periods of life; while again admitting it to be in a distended state, and exposed to external violence, we shall find some difference in its position, when contrasted with the adult, which may in some measure account for its very generally escaping free from any injury; thus, in early life the bladder when full lies more in the abdomen, and the sacral promontory does not exist in any considerable degree, hence if any sudden compressing force be applied to the vesical region, the shock will be spent on the abdomen generally, and the bladder being less confined in its place, may yield a little to either side, and will not therefore receive so sharp a stroke; the "contrecoup" against the posterior brim of the pelvis, will not be so abrupt as in the adult male. These circumstances may, I conceive, serve to explain why the bladder of the child or boy is so seldom ruptured in its posterior region, under the many accidents to which it is almost daily exposed; from this how-

ever let it not be inferred that such an accident cannot occur, on the contrary, I have no doubt that it may, if the force happen to be applied in some peculiar direction ; I have heard of one case of such an accident, but I myself have never seen one, nor do I remember ever to have read any account of such : I therefore consider that it must be a rare occurrence.

The fatal result of all these cases of ruptured bladder, is doubtless to be attributed to peritonitis, and this must always of necessity be the consequence of this injury, unless the sanative powers of nature should interpose, and succeed either in circumscribing the fluid within a new cavity, as appears to have been accomplished to a great extent both in the case recorded by Dupuytren, as well as in that of Gibson, which has been narrated in the beginning of this paper ; (in this latter case, indeed, in addition to separating the fluid from the rest of the abdomen, there also appeared to have been a process in progress, to effect its discharge either towards the rectum or perineum ;) or until some further remedial measures shall have been adopted by practitioners beyond those which have hitherto proved so unavailing. In these cases the peritonitis is clearly attributable to the effused urine, and not to any direct injury of the abdominal muscles, and through these to the peritoneum ; for in several cases the parietes have been carefully examined layer after layer, without the slightest effect of any injury being apparent ; moreover, the same effects have taken place where the rupture has been occasioned not by any direct violence, but from a general concussion, as in a fall from a height : in all these cases the peritonitis is clearly marked by the encreased pain on pressure, by the countenance, and by the pulse ; the stomach is so irritable as to reject the mildest fluid, and the bowels on the other hand, so inactive as to resist even the stimulus of injections. The torpid state of the bowels which is generally present in peritonitis, is, I presume, to be attributed to the inflammatory action having extended to their muscular tunic ; why, however, inflammation should have this effect on the muscular tissue, it would be difficult to explain. In all these

cases the intestines are found after death inordinately distended by fluid and flatus, so as to protrude the moment the abdomen is opened: in some instances they have appeared to me to have been preternaturally dilated, indicating not merely the want of action, but even the total relaxation of their muscular coat; this is more remarkably the case in the small intestines, than in the stomach or larger bowels. Is it the natural effect of inflammation to induce a paralytic condition in the nerves supplying the muscular fibre in general, and thus to incapacitate the latter from action? or, is there any physical change produced in the muscle itself which induces the same effect? or, is it that the fibre becomes impressed with an instinctive feeling, when labouring under inflammation, to abstain from contraction, so as to avoid pain? or, is this state of atony peculiar to the intestinal muscles, when labouring under inflammation? I apprehend it to be much more generally the case: these are interesting inquiries, but the limits of the present paper do not admit of their further consideration.

It is worthy of remark that the bladder, though the seat of this fatal injury, is itself in general but little inflamed, except the posterior portion of its serous coat; the mucous and muscular tunics are in most cases but little engaged, except near the cervix and in the very edges of the rent. In those instances which I have examined, the bladder has not been much contracted; this may depend on the longitudinal fibres being unable to act with their usual power, in consequence of the rent which is usually transverse; this inability however to contract and expel its contents, appears rather beneficial than otherwise, for any muscular contraction of this organ might tend to open the fissure, and so to admit or force more urine into the cavity of the peritoneum.

} *non-contraction*

The frequent desire which such patients experience to pass urine, may depend not only on the irritation at the cervix within the cavity of the bladder, but also on that between the bladder and rectum; on the latter also may depend the frequent



tenesmus and the distressing uneasiness in the perinæum and anus, and to the same cause I would attribute another symptom which has been noticed in one case, namely, frequent seminal emissions. In all those instances the examination of which I have witnessed after death, the inflammatory appearances were most intense in the pelvic cul de sac of the peritoneum, and to this fact as the cause I feel disposed to refer most of those symptoms which I have last noticed.

The secretion of urine, which is accumulated in such quantity at the time of the accident, appears to have been but scanty afterwards: this is the general state of this secretion in peritonitis, and is therefore to be rather attributed to this latter affection, than to be regarded as any direct effect of the vesical injury: indeed in many acute inflammatory diseases, such as peritonitis, this secretion is often almost suspended, and the attending fever assumes the same low typhoid form, which follows a total suppression from any renal affection. The appearances of the bladder in these cases have been pretty uniform; the rent is generally obliquely transverse; the serous membrane is cleft to the distance of an inch and a half or two inches; the edges are clean cut, and the division in this coat extends further, particularly upwards, than that in the other tunics of the bladder; the internal or mucous coat is rugose, and rather pale or slightly reddened in parts, and generally free from any acute inflammation; near the edges of the opening a slight submucous effusion exists, rendering them somewhat pulpy and protuberant; the muscular coat presents no peculiar appearance, except at the lips of the wound; here it appears jagged and irregular or torn, with slight ecchymosis between the fibres. In some cases the lips of the rupture have been found partly agglutinated, so as to prevent any further communication between the bladder and the peritoneum.

In general, rupture of the bladder is attended with such symptoms as to render the diagnosis tolerably clear and certain; in some instances the nature of the case is almost manifest to the most superficial observer: in others it is more obscure, and will require

some close and careful observation to determine its existence, and in others again it may be altogether overlooked from the pressing character of some other more urgent symptom. As rupture of the bladder is the effect of only two species of injury, the account of the accident may afford much information; thus every case on record has been the result, either of some force directly applied against the abdomen, such as a blow or a fall upon some resisting body, or of a fall from a height causing a general concussion of the whole frame; in this latter case, the injury is more likely to be overlooked, particularly if the individual have suffered in any other and more obvious manner; hence after such accidents, the attention of the practitioner should be early directed to the urinary discharge, and if there be any inability to pass urine and a desire to do so, the catheter should be introduced, from which, in all probability, some information will be obtained. When the rupture has been the effect of violence directly applied to the hypogastric region, the symptoms are more obvious, and the real nature of the injury can scarcely be overlooked; the patient is himself often aware of it, and states that he knew that his bladder was full of urine at the time of the accident, that he felt it to burst within him; together with this account, the sensation of sinking sickness, pain in the abdomen, and peculiar feeling about the præcordia, are all indicative of the rupture of some viscus. Should the patient, however, have been intoxicated at the time of the accident, (no unlikely circumstance,) the surgeon will be deprived of this information, and must therefore rather depend on the symptoms present, such as the desire to make water without the power to do so; the severe pain in the abdomen and perinæum during these attempts; the tense state of the abdomen; the general fulness, and the absence of any circumscribed tumor as in retention of urine; all these are important features and characteristic of this serious injury; finally the passing of the catheter will throw considerable light upon the nature of the case, the introduction of this instrument into the bladder being attended

with a peculiar resistance ; also the manner in which the urine flows through it, not in a stream, but as if it merely filled and overflowed the instrument slowly, at one time only a few drops passing, at another a considerable quantity, this difference depending on some alteration in the direction of the instrument, or in the degree of pressure with which it is pushed against the bladder, whereby the edges of the rupture must be separated and more or less of the abdominal and pelvic urine be discharged.

In some cases of this accident, the symptoms of peritonitis set in quickly and proceed very rapidly, so that the patient soon sinks into a state of typhoid stupor ; and as no urine is passed and there is no vesical swelling, and on the catheter being passed no urine flows, the patient may be supposed to have had a real suppression of urine from the first, or as one of the effects of fever ; hence the necessity of inquiry into the history of the case. I once found the urinary bladder ruptured, with peritonitis, in a case in which it was not suspected, the patient having been treated as labouring under fever. Such a mistake is not unlikely to occur if the patient have not been seen within the first forty-eight hours, and if the symptoms have proceeded rapidly, so that the vital powers have been soon exhausted, and he has sunk into a state of stupor. In most cases of ruptured bladder as the result of direct violence, no other injury has been inflicted except the lesion of that organ ; but when it has been the effect of general concussion, we have reason to suspect the coexisting rupture of some other viscus, or blood-vessel ; the case recorded by Bonet, is an example to that effect ; but again this has not uniformly been the result, as in the instance of the second case recorded in the Dublin Hospital Reports ; he fell from the battlement of a bridge, and ruptured the bladder, the abdomen, however, was not struck, and yet no other viscus was found injured.

Although I have no information to offer as to any successful mode of treatment in cases of rupture of the urinary bladder,

yet when I reflect on the results of the foregoing dissections, on the processes which nature had instituted, and on the steps which she had made towards recovery in several of the examples we have detailed, I cannot regard these accidents as entirely hopeless, notwithstanding the uniformly fatal issue of all such as have been recorded.

The first point is to make a careful diagnosis, so as not to confound the case with retention, or suppression of urine ; or with rupture of the urethra, ureter, or kidney : I admit that some difficulty on this head may occasionally exist ; supposing, however, that the symptoms have confirmed us in the opinion that there is a rupture of the posterior part of the bladder, what is to be done ? It is plain there are three objects to be attained ; first, to arrest peritonitis ; secondly, to abstract the effused fluid from the abdomen ; and thirdly, to guard against any further effusion by disposing the vesical wound to heal : in order to fulfil this latter indication, we have to prevent any accumulation in the bladder which must have the effect not only of distending it, and thereby separating the edges of the transverse rent, but which also by exciting the contraction of this organ, may impel an additional quantity of urine into the abdomen ; for this purpose then we should leave a gum elastic catheter in the bladder, or introduce one frequently, at least every second hour. It may be advisable in the first instance to use a full sized instrument with a large and long curve, and if by changing its direction, or by any manœuvre it can be passed through the rent, or can push its edges in such a way as to open it, a considerable quantity of the abdominal urine may be drawn off ; for I have found that on the first introduction of the catheter very little urine has flowed, but by pressing the end of the instrument towards the back of the bladder and depressing its handle, an increased discharge has taken place ; this plan then, as also pressure by the finger in ano, should be adopted at first, so as to draw off as much of the urine as we can ; but after that, the bladder should be disturbed as little as possible ; a short and slightly curved gum elastic



catheter with several holes in it should be retained in the bladder, and only removed when considered absolutely necessary.

Inflammation must be subdued by the usual active remedies; bleeding, local and general; leeches to the perineum and anal region; small and often repeated doses of calomel and opium; the latter medicine I consider in this case peculiarly applicable; the solid opium or the watery extract, in doses of one grain or one and a half very often repeated, and a suppository of the same, together with bleeding, fomentations and the warm bath, are general remedies, on which I should place most reliance. I believe purgatives are injurious at first; they usually irritate the stomach, and they very seldom move the bowels; an enema in the earlier periods may be of use, but I consider the frequent repetition of it useless, irritating, and injurious; the patient should not be encouraged to drink freely, as it usually causes vomiting, or should it be retained and absorbed, it may increase the urinary secretion, and this is not to be desired. Should the symptoms of peritonitis become moderate, and the stomach more settled, then some mild aperient in small bulk may be administered, if in the form of pill it will offend the stomach less than fluid, though sometimes a weak saline purgative acidulated or in effervescence will best agree with this organ.

If the disease however advance, the pain in the abdomen become more intense, with swelling and fluctuation, and the patient's sufferings more severe and urgent, can we make any further attempt to rescue him from his danger, or are we to remain as impotent spectators, only lamenting the imperfection of the healing art? The urine which is lodged in the cavity of the abdomen or pelvis is the great source of the mischief, can this be removed? Paracentesis of the abdomen has been attempted in two instances with this view, but without success, as has been before mentioned; indeed it appears to me that the operation as performed in those cases, could not possibly answer the intention. The urine which is effused, and which is the source of all the danger, is principally lodged in the pelvic cul de sac, and is more or less confined to that region, partly from its de-

pending position and partly from the adhesions which we have reason to expect under proper and active treatment, may have been formed between the bladder and the adjacent viscera, at the upper orifice of the pelvis. Paracentesis of the abdomen, as performed in the ordinary situations, cannot possibly evacuate this region, nay, it may rather prove injurious by inducing a more general effusion of the fluid, and of course irritation of the peritoneum by a partial removal of the urine from this depending position.

It occurs to me that paracentesis is still the great remedial operative measure we are to look to, but it must be in a totally different situation from that hitherto selected. I should recommend that the pelvic cul de sac be tapped from the rectum. Should the parts be in that state in which dissection has shewn them in some cases to have been, we may suppose that the pelvic cul de sac is distended with fluid, coated with lymph, and well protruded towards the rectum, or between this and the bladder; that the latter viscus is empty and rather small, and that adhesions have nearly closed the pelvis above and separated it from the abdomen; if a small opening be now made through the rectum into this cul de sac, the irritating fluid may be discharged without injury to any important organ; indeed the opening into this new and circumscribed cavity, cannot even open into or affect the general peritonæum, provided the superior pelvic and vesical adhesions have been perfect; in fact, a new cavity has been formed, coated internally like an abscess, and containing a foreign and an irritant fluid, and the operation now suggested, is merely opening this in the most depending situation. There is no peculiar difficulty in this operation; the patient may either be in bed or on a table, the knees drawn up and somewhat separated; the finger of the left hand, is to be passed up the rectum as far as possible, and pressed against its forepart; the catheter at this time in the bladder, may also guide the finger so as to judge of the situation of the cul de sac behind this organ: the canula of the curved trochar is next to be passed along the

finger, and when its extremity shall have been well directed against the forepart of the rectum precisely in the median line of the body, the stylet is then to be passed through it, and the peritoneum opened ; some might prefer a long curved knife with a sheath or with a cutting edge only on its extremity : great care should be observed to perforate in the median line ; some of the pelvic blood-vessels may be endangered if there be much deviation to either side. I do not apprehend any injury to the small intestines as a quantity of effused fluid and of adhesive matter must intervene, nor have I found any of their convolutions in the pelvis in those cases which I have examined. The fluid being then discharged, the canula may be withdrawn, and the catheter being retained in the bladder, the urine will flow off as it is secreted ; the bladder will thus be allowed to remain quiescent, and we may then expect that the edges of the rent will soon unite, while the cause of irritation being removed from the abdomen, we may reasonably hope that the further progress of peritonitis may be arrested, and the patient ultimately recover.

I am aware that this proposal has no experience in its favour ; it is merely grounded on the appearances which the dissections of several fatal cases have presented, and it also appears to me to accord with the sound principles of general pathology.

Tapping the peritoneal cul de sac from the rectum, cannot, I conceive, add to the danger of the patient under such circumstances ; the opening will soon close, and there is no probability of any of the contents of the intestine entering the abdomen through so small an opening as that which the trochar shall have made. Should another case of this accident present itself, unattended with any other injury, I should feel myself fully justified in attempting this operation in addition to the other means I have recommended, in particular the retaining the catheter in the bladder, and the free administration of opium.

The following case appears to me worthy of notice ; it is one of rupture or laceration of the bladder at a very early age, and from a different cause, in a part of the organ opposite to that

in which the rupture had occurred in the preceding cases, and was followed by a train of symptoms altogether of a different nature. The lesion of the bladder in this case was in its anterior region, and was caused by of the separation of the pubic symphysis, to each side of which the anterior vesical ligaments are so intimately united, that by the forcible divergence of the bones, these ligaments were separated in the median line, while their pubal and vesical attachments continuing, the bladder became rent in a vertical direction.

*Case of Nicholas Keogh, a fine healthy child, two years and a half old.*

On Saturday, the 12th of December last, about two o'clock, this child was carried to the hospital, having just received a very severe injury. He had been playing in the street, unconscious of the near approach of a cart heavily laden with stones which was passing at the time; the shaft struck and threw him down, and the wheel then passed over the lower part of the abdomen and pelvis. He was supposed by those who were looking on to have been killed, and was taken up speechless and senseless; he very soon, however, recovered from this state, and began to scream. In about an hour from the occurrence of the accident I saw him; he was cold and shivering, and with little pulse; he had vomited, and passed some urine and feces involuntarily, but free from blood. On examination, I found the lower part of the abdomen much injured; a broad ecchymosed line extended across from the left ilium to the right trochanter, it was so painful to the touch, that he would not submit to any pressure or examination, and the parts were too swollen to enable me to feel the natural bony projections. The limbs were greatly divaricated; the left lay nearly at right angles with the perineum and trunk; the pubal and perineal regions appeared unusually broad, particularly the latter, which also felt very thin and greatly distended with fluid; this from the colour of the part was supposed to be principally blood; the scrotum and penis were not at all



swollen, and there was no bloody discharge from the anus, urethra, or stomach. On examining the bones of the pelvis as well as the screams of the child would permit, I felt satisfied of crepitus about the left ileo-sacral articulation, and I also conceived there was a fracture, or what was more probable, a separation of the pubic symphysis. On placing the child in bed, the position of the lower limbs was remarkable; they were divaricated to such an extent, as to lie nearly on a straight transverse line, and of course each of them nearly at right angles with the axis of the body; by steady and gentle pressure, however, they could be restored to their natural parallelism, and while retained in this position, the perineal and pubic fulness were much increased, and their breadth diminished; when again all restraint was removed, the limbs quickly returned to the former position; there was no paralytic affection of any of the muscles.

The diagnosis which was made of this case at this time, although some doubt existed, was "separation of the left ileo-sacral articulation, separation or fracture of the pubic symphysis, and probably a fracture of the right ilium, with most probably a rupture of the anterior region of the bladder, or of the urethra in its sub-pubic portion"—prognosis "fatal." He was ordered a cordial opiate draught, warmth to the feet, cold embrocation to the pubal and perineal regions; a circular bandage or belt was passed round the pelvis, the thighs were also retained in a parallel position, and the knees were supported by a pillow beneath them, so as to relax the flexors of the hip joints.

13th. Eight o'clock, A. M. Passed a quiet and tolerably good night, slept occasionally, and complained of but little pain; passed water twice, gave notice of his wish to do so, but before the necessary preparations for receiving it could be made, it had passed off involuntarily, and stained the clothes a brownish colour; pulse 120; countenance natural; manner cheerful and lively; little or no tenderness in the upper regions of the abdomen; the hypogastric region is very painful on pressure, and he screams when the pelvis or perineum is touched; the latter

region is very full, ecchymosed, and fluctuating; penis and scrotum appear as natural. As I suspected the urethra had been injured, I introduced a small gum elastic catheter; this passed with unusual ease, and confirmed my opinion, that there was some peculiar lesion of the bladder or urethra; the instrument passed too freely, and to too great a distance; when beyond the scrotum it could be moved in any direction; about three or four large spoonful of urine were drawn off; the fluid was turbid and dark-coloured, not however as if the effect of blood; the instrument was secured in the urethra, and measures adopted to receive any urine it might transmit; ordered cold lotion to be continued to the pubes and perineum, and some aperient powders every third hour; a pupil was directed to pay frequent attention to the catheter.

14th. Passed a good night; bowels have been opened three times; urine has frequently flowed through the instrument, and has been collected to the amount of about six ounces since yesterday morning; the pain in hypogastrio is very severe, when ever he is pressed in that region; the ecchymosed transverse line on the abdomen is very red, and the ecchymosed spot towards the right ilium is of a much darker colour; an erysipelatous blush extends towards the scrotum, as well as upwards on the abdominal parietes; abdominal tenderness on pressure is general; fever increased; pulse very quick and hard; thirst urgent; any attempt to move him is attended with severe pain; the catheter was taken out, and was found incrustrated with much earthy matter: it was cleaned and replaced. Ordered eight leeches to the epigastric region; warm fomentations to the abdomen and perineum; some diaphoretic mixture to be taken every hour.

15th. Appears to be improved in many respects; has passed a great quantity of urine, more by the sides of the instrument than through it; the bowels have been freed five or six times; all his feverish symptoms are less, and he has frequently called for food and drink; his countenance is cheerful, and he is

playing with his toys ; but local appearances are not improved, the symptoms indicate diffuse cellular inflammation from effusion of urine ; a dusky red colour extends across the lower part of the abdomen ; the erysipelatous blush has increased in extent from this in all directions ; the injured spot near the right ilium is blackish and threatens gangrene ; no pain in the upper part of the abdomen ; perineum very prominent ; scrotum slightly swollen and red. Ordered fomentations to be continued ; a poultice over the right groin ; catheter to be retained ; diaphoretic mixture to be continued ; and some light nourishment every fourth hour.

16th. Passed a very restless night, which, I think, was greatly owing to his mother's mistaken kindness ; she, in her natural anxiety to relieve him from his uncomfortable position, loosened the circular bandage from his thighs, he consequently tossed his limbs about, and they are now in the same divaricated position as after the receipt of the injury. All the unfavourable symptoms both local and general, are greatly aggravated ; the perineum is more full, and is blackish at one spot ; the scrotum is of a dusky red, but not much enlarged ; the prepuce is much elongated and swollen ; the urine, however, constantly flows guttatim, principally by the sides of, and but little through the catheter ; right inguinal region is in a state of superficial sphacelus ; the transverse line on the abdomen is of a dark red, indicating the approach of a similar condition. I withdrew the catheter, it was incrustated with so much sabulous matter, as to cause much pain and some difficulty ; I did not attempt its re-introduction, but made an incision into the perineum ; this gave exit to grumous blood, unhealthy purulent matter, and foetid urine ; he appears much weaker ; his countenance is sunk ; there is a great disposition to sleep ; when, however, he is roused, his manner is cheerful ; he resumes his play-things, and appears to suffer little pain, unless when moved, or when the injured parts are touched. Ordered a large poultice to the lower part of the abdomen and perineum, to be renewed every

six hours with fomentations ; chicken broth at frequent intervals, and a weak solution of sulphate of quinine well sweetened ; the legs were again drawn down very gently, and secured across a pillow.

17th. Urine has been constantly dribbling through the perineum, and a little by the urethra ; the slough on the right groin has separated ; fluctuation is perceptible beneath the integuments in the hypogastric region ; debility increased ; constant stupor ; pulse small and weak ; takes the quinine, and sufficient nourishment ; bowels have been freely opened without medicine. I made free incisions through the abdominal integuments ; cellular sloughs, purulent and urinous fluid were discharged. Ordered, his medicines and nourishment to be continued, also *vinu rubri*  $\zeta$ ss *omnia tertia horà*.

It is unnecessary to prolong this narration by any further daily reports ; the sloughing continued to extend, so as to dissect clean the lower portion of the abdominal muscles from ilium to ilium ; the perineum was excavated by the same process, and the child gradually sunk under these effects of diffuse inflammation, ulceration, and gangrene ; he remained almost constantly in a state of stupor, unless when roused to take medicine, nourishment, and wine ; the secretions all continued to within a few hours of his death, which occurred at twelve o'clock on the night of the 21st, being about ten days from the receipt of the injury. On the next day the body was examined, and presented the following appearances :

The integuments of the abdomen had been destroyed to a great extent, and an extensive cavity existed between such portions as remained and the abdominal muscles ; the integuments of the perineum were also extensively detached from the deeper seated parts ; a large unhealthy looking cavity appeared beneath them, this communicated with that on the abdomen. The integuments and subjacent structures about the anus were healthy ; the scrotum also, though thickened and somewhat enlarged by inflammation and effusion, was not diseased to a



further extent. On opening the abdomen, the contents of this cavity were perfectly healthy, and presented not a trace of inflammation; the peritoneum was of its natural pearly appearance; the alimentary canal was contracted, and contained no more flatus than usual; no appearance of inflammation and no effusion of fluid in the pelvic region; and the posterior surface of the bladder was free from any morbid change: on examining the pubic region, however, in front of the peritoneum, there soon appeared abundant evidence of extensive injury; the ossa pubis were separated by an interval of an inch and a half, each surface was perfectly denuded of ligamentous covering, and lay exposed in a large sloughy cavity, which opened into the perineum below, and led upwards towards the large abscess which lay on the surface of the abdominal muscles, the recti muscles being torn through from their pubal attachments: behind the pubes the bladder was seen opened by a longitudinal laceration or fissure, extending along its anterior region near to its neck, or to the prostrate gland, the lower extremity of each side of the fissure adhered to the corresponding pubis, together with the anterior ligament of the bladder, so as to suggest the following explanation of this lesion: the two pubes being forced asunder by the weight of the cart wheel, each bone carried the corresponding anterior vesical ligament, and these being each intimately connected to the longitudinal muscular fibres of the bladder, the latter were separated from each other in the median line, while the circular fibres and the mucous coat were torn through, but the urethra not being thus divisible was torn across just behind the bulb; one crus penis was detached from the bone, while the other was stretched and partially torn. The bladder thus communicated directly with the perineum, and the interior of this viscus presented all the characters of acute inflammation; it was of a dark red, or violet hue; its cavity was very small, and the soft rugæ projected nearly on a level with the edges of the laceration; the several textures in the perineum were destroyed, and this cavity communicated with the abscesses on the

fore part of the abdomen. The left ileo-sacral symphysis was also separated to a short distance, the connecting ligaments being only extended, but not broken through; on dividing these, a collection of healthy pus was observed between the bones, confined as if in a regular abscess; a slight purulent cellular infiltration extended from this to the perineum, but no direct communication existed between these regions; a small quantity of clear urine lay in the bladder behind the prostate gland. There was no injury to any other portion of the pelvis; the right ileo-sacral articulation appeared as if it had been somewhat forced, as it was a little looser than natural, and the ligaments and subjacent tissue were more than ordinarily vascular, there was no laceration however of the former, and no suppuration in the latter. The rectum and the other contents of the pelvis were uninjured, as also the ileo-femoral articulations.

In all respects, except that of a fatal termination, this case forms a striking and interesting contrast to those detailed in the first part of this paper, and the pathological differences may be all traced to this one fact, that in those the serous portion of the bladder was that injured, and peritonitis with all its consequences was the result; whereas, in the latter case the anterior portion of the bladder being the only part injured, the serous membrane of the abdomen was not involved in any of the after stages of inflammation, hence the fever was altogether of a different type, and the functions also were affected in a totally opposite way. The cast of countenance in both Kelly and Gibson, were of that sunk and anxious character so descriptive of peritonitis, whereas in the case of Keogh, it was cheerful as natural, except at the moment of any acute suffering or near the close of life, when it bespoke the general sinking of the system; in the latter also, the functions of the stomach were but little impaired, he had little or no vomiting, except on the immediate receipt of the injury, and the appetite was tolerable through the greater part of the illness, and thirst was seldom urgent; again, the bowels which were as obstinately constipated

in Kelly and in Gibson, as the stomach in each was irritable, were free and very easily acted on in the case of Keogh, the urinary secretion too, which was scanty in the two former, once peritonitis had set in, was abundant and natural in the latter; the fever in Keogh for the first few days, was purely inflammatory, and that too in a moderate form, it then became low and typhoid, as the local disease extended. All the effects of the injury, though in the same viscus, wore a totally different aspect during life, so also were the pathological appearances on dissection: in Kelly and in Gibson, the bladder was not much contracted; the transverse section of the detrusor fibres having probably impaired that power, whereas in Keogh, though so extensively opened, it was contracted to the size of the half section of a walnut, because its longitudinal fibres being connected to each os pubis, still retained a fixed point towards which to act; again, in the two first the mucous surface was but little affected, whereas in Keogh, it was dark and mottled, and of that violet hue so strongly indicative of intense inflammation; this surface might, in fact, be considered as continuous with, or a part of the surface of the great perineal and pubal abscess which existed.

Another circumstance peculiar in the case of Keogh deserves to be noticed, as the dissection explains the cause of it, namely, the divaricated condition of the lower extremities; this clearly depended on the distance between the pubes at the symphysis, and the loose and unsupported condition of these bones, which, no doubt, were permitted to yield or separate still further by the weak state of the ileo-sacral joints, thus the adductor muscles of the thigh had lost their fixed points of attachment, their "point d'appui;" and therefore the glutæi muscles and the other abductors having no antagonism, at once drew the limbs into that strange position, the moment the restraint which kept them in apposition was removed: I need hardly observe, that this symptom, which may perhaps in children be considered as pathognomonic of separation of the pu-



bal symphysis, was absent in the simple rupture of the bladder in the adult. In the treatment of these cases by the catheter, dissection also accounts for the difference which was experienced in this operation, namely, in the case of Keogh the facility with which the instrument passed, as soon as it reached the perineum it could be pushed to a great distance and in every direction, so that although urine flowed through it, I yet felt satisfied it was not in the natural cavity of the bladder, and that it had not made the proper subpubal turn, whereas in Gibson and in Kelly, as soon as the catheter had cleared the slight natural obstructions to its course, and had entered the bladder, the handle could not be suddenly depressed, and the instrument appeared to be pushed somewhat back again, as if, in fact, the bladder was small or being contracted.

As a full inspection of the post mortem appearances, added to a careful attention to, and reflection on all the symptoms during life in the case of Gibson and Kelly, have led me to offer some remarks or suggestions as to the propriety of attempting under such circumstances, a different plan of treatment from that which has been hitherto so unsuccessfully pursued, so when I contemplate all the features of the last mentioned case, that of Keogh, I cannot avoid coming to the conclusion, that had I been more confident in the diagnosis which I first made as to his real injury, and had I grounded a more active practice thereupon, I might perhaps have had the gratification of saving his life, or at all events I might have gained the satisfaction of feeling that I had used all the resources of our art in making the attempt. I attribute this child's death mainly to the extensive effusion of urine, producing that diffuse cellular gangrenous inflammation which is often fatal even to those more advanced in life, and who are better enabled to resist such severe constitutional derangement as usually attends this disease. Were a case similar to that of Keogh again to present itself, the practice which I should recommend would be at once to open the perineum freely, to bind the bones of the pelvis together by a



circular belt, and to secure the lower limbs in a proper posture. Had all these measures been adopted in the case of this boy who possessed such a good constitution, I think the extensive suppuration on the abdomen, and the gangrene in the perineum might have been arrested, the pubes would have been kept in apposition, and the ileo-sacral abscess in all probability would have been prevented; but on the first examination, although I suspected that the bladder or urethra, or both were injured, yet I was afterwards led to indulge a hope that these might have escaped, and this was in some measure encouraged by seeing that there was no bleeding from the urethra, or swelling in the scrotum; the latter circumstance being so contrary to what occurs in ordinary effusions of urine, particularly led me into the error of delaying the necessary incisions into the perineum; dissection, however, shewed why the effusion of urine should rather at once have taken the upward course it did, than first distend this part, and then ascend from either side as it usually does; it was simply because the pubes were torn asunder, the recti muscles separated and partially lacerated, and thus there was a direct course, which at once conducted the confined urine into the superficial hypogastric region.

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ART. XV.—*Observations on “Bruit de Cuir Neuf,” or “Leather Creak,” as a Diagnostic Sign in Abdominal Disease.*

By D. J. CORRIGAN, M.D., Lecturer on the Theory and Practice of Medicine at the Dublin School of Anatomy, Surgery, and Medicine; Physician to Jervis-street Hospital, &c.

PHYSICAL signs have of late years attracted great and deserved attention from their value in diagnosis. Independent of, and influenced by the sympathies which often render functional signs but uncertain indications, physical signs, when their cause has

been correctly ascertained, become unerring diagnostic marks. Their existence cannot therefore be too eagerly sought for, nor their mode of production too rigidly investigated.

A singular physical sign, a peculiar creaking, has occasionally been perceived in some diseases of the abdomen; to determine accurately the mode of its production, and with what morbid state it is necessarily connected, is of importance both in diagnosis and practice. Dr. Bright, whose name as a physician ranks so deservedly high, has in the last volume of the *Medico-Chirurgical Transactions*,\* written a paper on the presence of this creaking, as a diagnostic sign. Dr. Bright describes it as “a very peculiar sensation communicated to the touch, varying between the crepitation produced by emphysema, and the sensation derived from bending new leather in the hand,” p. 177. He compares it in another place (p. 212) to the sensation experienced “when the finger or hand is rubbed over a damp pane of glass.” The sign has also been described by Piorry, and most accurately, as a mixed sensation, which is perceived at the same instant by the ear and the finger.† The sensation as I have myself felt it, is easily recognized although with difficulty described. We are conscious when we squeeze or bend new leather so as to make it creak, that we receive a peculiar sensation simultaneously through the ear and finger, a sensation as if the impression on the hearing were conveyed through the finger touching the leather. Such is this sign as nearly as I can describe it. In cases where the creaking may be indistinct to the sense of touch, the stethoscope is of great assistance in detecting it. The stethoscope is to be applied over the part of

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\* Cases and Observations illustrative of Diagnosis when adhesions have taken place in the Peritoneum, &c. by R. Bright, M.D. F.R.S., Physician to Guy's Hospital.—*Medico-Chirurgical Transactions*, published by the Royal Medical and Chirurgical Society of London, vol. xix.

† “Elle semble se rapporter à la fois au doigt qui percute et à l'oreille qui l'écoute.”—*Traité de la Percussion* p. 32, Paris, 1828.

the abdomen where the creak is sought for, while at the same time the parietes of the abdomen are pressed with a moderate degree of firmness and suddenness with the hand; the creaking will be heard loud by the ear, while it is dull to the finger.\*

Dr. Bright considers this sign as diagnostic of adhesion having taken place in the peritoneum. He says, (p. 208,) "if without the other symptoms, that peculiar crepitus of which I have spoken should exist, scarcely a doubt would be left in my mind that adhesions had formed." The cases which Dr. Bright relates were well calculated to impress him with such a conviction, and yet with that caution which belongs to knowledge and experience, he expresses some doubts as to whether the "crepitus" may not perhaps chiefly belong to the period when the adhesions are only in process of formation.\* A case of abdominal disease which has been under my observation, is calculated, I believe, to throw light upon what may be doubtful, as to the production of the leather creak in the abdomen, and taken in conjunction with Dr. Bright's cases, to determine the precise pathological state of the peritoneum which produces it.

\* I have used the term "creak" for want of a better. "Fremissement" is the term used by Piorry, but it is, I think, objectionable, being already applied to an impression of a different kind. "Crepitus," the term sanctioned by Dr. Bright, is also objectionable, because it also has been appropriated to some of the rattles heard in the lungs. Our own English word "creak" conveys, perhaps, the best idea of this peculiar sensation, and there seems to be the most perfect analogy between it, as heard through the stethoscope, and the new leather sound, or "*Bruit de Cuir Neuf*," heard occasionally in pericarditis. This creak is a different sensation from ordinary frottement, of which it may, however, in mode of production, be but a variety.

† Page 194. "I have had reason to believe in other analogous cases that the crepitation has chiefly belonged, though by no means exclusively, to some early period of the formation of adhesion, probably before the contraction of the newly formed fibres has taken place." And p. 177: "I have observed on several occasions that when circumstances of the disease had rendered it probable that adhesions might take place between the viscera and the peritoneum of the abdomen, a very peculiar sensation has been communicated to the touch, &c."

Jane Priest, ætat. 47, was admitted into Jervis-street Hospital in May, 1834. She had been tapped in April, and after various changes, unnecessary to be related, it was found necessary to tap her again in June. After the water had been drawn off, some small spherical hard tumors were for the first time felt in the left hypochondriac and lumbar region, and a considerable fulness remained there, while the rest of the abdomen was flaccid. On pressing the abdomen with the hand in the situation where the fulness remained, *a creaking sensation was felt resembling the creaking of new leather*. The abdomen in the same place sounded dull on percussion; the remainder of the abdomen sounded clear, and change of posture had no effect in altering the relative positions of the dull and clear sounds. From March until October 16th, when she died, she was tapped six times. The creaking sensation continued, but with variable intensity, up to death. When the abdomen was very much distended by fluid the creak could be scarcely perceived, but after each tapping it again became distinct. From the left side remaining full after tapping, and continuing dull on percussion in all changes of position, it was obvious that in addition to the general peritoneal dropsy, there was some tumor, probably ovarian, in this region, and after each of the few last tapplings a tumor projected, which continued to increase in size to death.

*Post mortem.*—A large tumor occupied the left half of the abdominal cavity, and imbedded in the anterior surface of this tumor were several small cysts, (resembling hydatids,) none larger than a hazel nut. These were the nodules felt through the parietes during life. These cysts were tensely filled with serous fluid, with a few flocculi intermixed. The tumor itself was a large ovarian tumor, made up of one large and two smaller cysts, principally filled with spongy, vascular, and cerebriform matter, altogether presenting a good specimen of medullary cancer. Large veins ramified on the interior of the tumor, their trunks containing large portions of the same mat-



ter. The peritoneum, lining the abdominal parietes, particularly that portion of it opposed to the ovarian tumor, was covered with a layer of moderately firm, rough, spongy lymph, at least the eighth of an inch thick; but where the nodules, or small spherical cysts, projected against the peritoneum, there were depressions in the lymph, giving accurate moulds of the nodules. It was over the most prominent part of the large tumor where these nodules projected, that the creaking was felt. The peritoneum covering the intestines was studded with lymph and small tubercles.

This case, from its peculiarities, enables us to ascertain to what morbid state of the peritoneum the leather creak really belongs as a diagnostic sign, and how it is produced. Recamier considered it as indicative of the presence of acephalocysts. Piorry\* believes that it is produced by small hydatids in great numbers, moving about in one large, common cyst; but also observes that a sufficient number of facts is wanted to confirm him in his belief. Dr. Bright, as already observed, attributes it to the presence of adhesions. Dr. Beatty, in the sixth volume of the *Dublin Journal of Medical and Chemical Science*, expresses his belief that it is caused by the rubbing together of opposing surfaces of the peritoneum, which have become rough from deposition of lymph; but he had no opportunity of verifying his opinion by dissection.

In respect to Recamier's and Piorry's opinion of the creaking being diagnostic of hydatids, the case I have related is decisive. It proves that the presence of hydatids is not necessary to its production, for in this case there was the creaking, and there were no hydatids. The small spherical serous cysts which were attached to the surface of the large tumor, and which, perhaps, have sometimes been confounded with hydatids, were merely the vesicles of the ovary more than naturally developed; they were few in number, separate from one another, confined

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\* *Traite de la Percussion*, p. 159.

firmly in their places, and containing within them no loose hydatids; there could not be, of course, any collision to produce creaking.

The case also proves that neither is there any necessary connexion between adhesions within the abdomen and this sign; for in this case, so far was there from any tendency to adhesions, that where the small cysts rising above the surface of the large ovarian tumor, projected against the peritonæum lining the abdominal parietes, they left smooth impressions in the lymph covering the peritonæum, just as their impressions might be made in wax or plaster, without the slightest disposition to adhesion.

As there were neither hydatids nor adhesions in this case, we must refer the creak to some other cause; and the only causes left to which to attribute it, are, the large ovarian tumor, the small cysts, or the layer of lymph on the peritonæum: to one of these the crepitus or creak must be referred. The large ovarian tumor or the small cysts are not necessary to its production, because it was perceptible in some of Dr. Bright's cases where there were no such tumors. The only morbid condition now left us, and to which we must necessarily refer it, is the presence of the thick layer of tolerably dense and spongy lymph which lined the peritonæum, the friction and compression of which by the hand, caused the peculiar creak, just as squeezing and bending new leather causes an analogous sensation, but much stronger in degree. To ascertain if this view could be verified by experiment, a piece of the peritonæum, covered with lymph, was cut out, and folded so as to bring the two layers of lymph in contact with one another. On rubbing and squeezing the two surfaces against one another, the creak was produced, and was easily perceived both by the touch and through the stethoscope, placed in contact with the portion of peritonæum. In this experiment there was no difficulty whatever in producing the sensation of ordinary frottement, but it was only occasionally we were successful in producing the new leather creak. The

experiment was repeated with the same result, the peritonæum being immersed in water.

Dr. Bright, in support of his belief that the leather creak is a diagnostic sign of adhesions, relates several cases. None but those in which *post mortem* examinations were made, can of course be received as satisfactory. These are four in number, and it is necessary to examine them to ascertain how far they support Dr. Bright's belief in the connexion between the leather creak and adhesions, or how far they are in accordance with the explanation now offered of the production of this sign.

In case No. I. there was a complication of morbid states, a cerebriform tumor in the abdomen, with adhesions and lymph on the peritonæum; so that, as Dr. Bright himself observes, it was impossible to determine to which among them the creak was to be referred.

In case No. II. there was a large ovarian tumor, and in the situation where the creak had been perceived, there was found on dissection, adhesion between the tumor and the peritonæum, but this is not satisfactory. The creak was perceived in the month of February, and the patient lived until the December following. The adhesions being found in December is not proof of their having existed ten months previously; the interval is too long, and there is no mention made of the sign having been perceived at any time nearer to the date of the *post mortem* examination.

To case No. III. the same objection applies, and more strongly; for the creak was observed in July, and August 1830, and the patient lived until November 1834. There is moreover, almost positive evidence that at the time when the creak was perceptible in this case, there could have been no adhesion. It was detected in July 1830, immediately after tapping: there could hardly have been adhesion of any amount, at the time when the peritonæum contained so much fluid, as to require that operation. The *post mortem* examination in November, 1834, however exposed adhesions so close and so extensive, as

almost to obliterate the cavity of the peritonæum, so that in cutting away the parietes the intestines were perforated. Such adhesions it is obvious, must have grown up subsequent to the tapping in July, and after the date of the presence of the creak. If the creak were dependent on adhesions, it ought instead of vanishing, to have become every day more marked in proportion as the adhesions became more and more perfect, but on the contrary, there is no mention (in the notes of the case) of the creak having been perceived after August 1830, from which we may fairly infer that it had ceased to exist.

In case No. IV. the operation of tapping was also performed, three gallons of fluid were drawn off, and two days after the creak was perceived. "It was perceived but for two or three days, and then became indistinct." This occurred in April, and the patient lived until June. On the *post mortem* examination, the colon and omentum were found adherent to the abdominal parietes. It is more than probable, that in this case, as in the one preceding it, the adhesions were formed in the interval between the operation of tapping and the death of the patient; and that the creaking which was perceptible for only two or three days, was caused only as long as the lymph shed on the surface of the peritonæum was as yet unattached to the opposing surface. If the adhesions had been the cause of the creak, there is no reason apparent why it should not have continued perceptible up to death. A fifth case is also related communicated by Mr. Hutchinson, but the observations already made apply to it, a period of six weeks having elapsed between the period when the creak was felt, and the death of the patient.

All the cases related by Dr. Bright, leave us in doubt, whether to attribute the "leather creak" to the presence merely of lymph which had been shed preparatory to the formation of adhesions, or to those adhesions fully formed. Adhesions were it is true found after death, but we are not therefore justified in



concluding that they had existed at the period when the creak was felt, or in referring the creak to them; for a considerable interval having elapsed between the period when the creak was perceptible and the death of the patient, these adhesions might have grown up within that interval. The doubt in which we are left by those cases, is cleared up by the case related in this paper. In the progress of that case, the creak was frequently felt, and after death no adhesion having been found, it necessarily follows that adhesion is not necessary to its production, for it is scarcely possible to suppose, that if adhesions ever had existed they could have disappeared.

The conclusions which may be drawn from the case related in conjunction with Dr. Bright's cases are, that "crepitus or creaking" is not *diagnostic\** of hydatids as supposed by Recamier and Piorry, nor of adhesions as supposed by Dr. Bright himself, but that the doubt expressed by him is well founded; and lastly, that deposition of moderately thick and consistent lymph on the peritonæum, is the only condition requisite for the production of the "leather creak," which deposition of lymph may or may not terminate in adhesions.

Indeed a careful examination of all the cases noticed, proves not only that this sign "is not necessarily connected with the existence of adhesions, but that as long as the creak continues to be felt, adhesions are not yet formed. Some of Dr. Bright's cases very strongly support this conclusion. The creak was perceptible in them for two or three days after tapping, and then ceased to be felt; that is, it was perceptible as long as the lymph which was to form the adhesions was yet soft and yielding, and then ceased when the adhesive process was completed. This conclusion is also supported by analogy with what occurs in similar instances, for example in pericarditis, the new leather

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\* I do not mean to assert that an analogous sensation may not be caused by hydatids in the manner described by Piorry, but that it must not be esteemed a diagnostic sign of them, since it may be produced by another cause.

creak being perceptible only while the recent deposition of lymph is yet soft and spungy.

What is wanted in cases occurring to one observer, may often be furnished by another, and thus in the present instance, the cases related by Dr. Bright, and the case detailed here, throw a mutual light upon another, and enable us to arrive at an explanation of a physical sign, which probably neither observer could of himself have attained. The determination of the extent of diagnostic information given to us by the leather creak in diseases of the abdomen is of considerable importance; for as the existence of adhesions in the peritonæum might occasionally considerably influence practice, a mistake on this point might involve life, in the treatment of some of the most serious abdominal diseases. I should not omit to mention that Dr. Beatty, by his acuteness of tact, anticipated without the aid of dissection, the explanation of the production of the leather creak, which has now been drawn from pathological investigation.

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ART. XVI.—*Outlines of certain Changes of Organic Elements.* By Sir JAMES MURRAY, M. D., Edinburgh, and T. C. D.; Member of the Royal College of Surgeons, Edinburgh; Senior Physician to the Lord Lieutenant.

[Read at a Meeting of the Surgical Society of Ireland, 20th Feb. 1836.]

GENTLEMEN,

HAVING had the honour of taking a part in a discussion at the College of Physicians, respecting the evolution of urea in the blood, and the detection of various saline products in the urine, I have been induced to invite further attention to subjects so interesting.

As the discussion alluded to took place on the evening before last, the shortness of the time, will, I hope, excuse the imperfections of this paper.

My object is to elicit information from those whose studies are more immediately directed to organic chemistry.

The elements composing the inorganic world are few and simple, and their combinations intelligible, but the investigation of the elementary mutations of organic matter encounters difficulties at every step. Here we meet such boundless variety, such perpetual change and complexity, that we cannot reduce their combinations exactly to the same order of laws, which regulate the simple arrangements of mineral bodies.

The rule of definite proportions, however, is our great auxiliary in unravelling many of the intricacies of anomalous modifications otherwise almost inexplicable. The atomic doctrine has brought chemical laws nearly within the calculations of mathematical reasoning, and enables us to class chemistry among the exact sciences.

The human body is composed of particles or molecules called immediate or proximate principles. In the fleshy or soft parts these constituents are chiefly fibrine, gelatine, and albumen.\* These principles are composed of four ultimate essential elementary bodies, carbon, oxygen, hydrogen, and nitrogen. These four elements combine to form the above principles in certain specific proportions. In round numbers these definite quantities unite in the following ratio, per cent:

GELATINE.	ALBUMEN.	FEBRINE.
Carbon, . . 48	53	53½
Azote, . . 17	15¼	20
Oxygen, . . 27	24	19½
Hydrogen, . 8	7½	7

The proximate principle of bone is mostly phosphate of lime, the elements of which are lime and phosphorus with

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\* The questions of the identity of albumen and gelatine, and whether the one be naturally a product of the other, are not here entertained.

oxygen, (other less essential constituents are postponed to a more advanced paper.)

In animals there is a continual progress of removal of the old organization, and a deposition of new particles to supply its place. In this removal, the older molecule is resolved into its constituent elements, and not absorbed or carried away as an integral compound.

As the original elements combine in determinate atomic proportions, so the resulting animal particles are always similar in one healthy body to those of another, and alike in every part of the same body. The unions of the atoms are precise and uniform, and hence, the uniform results. But for these definite laws, no two or more combinations would produce the same effects except by accident, but like the reflections of a kalidescope, an unceasing series of transitions and unstable variations would take place.

As four leading colours, black, blue, red, and yellow, by varied combinations afford all other shades, so would the undefined or proportionless junction of four elements produce endless varieties, dissimilar in construction and properties. But in the regeneration of new principles or particles from food, air, or imbibition, certain causes may interfere to occasion an alteration of atomic arrangements, and one or more combinations, different in properties from those which should be naturally deposited, may ensue. Such changes of relation are much facilitated among the ultimate elements, by reason of the energetic affinities with which they are endowed. The presence of azote in animal particles, greatly strengthens this elective tendency. The nitrogen sometimes unites with hydrogen, and forms ammonia, leaving the oxygen to seize carbon and run into carbonic acid, and this product may again join some nascent combination, or be liberated through the permeable membranes of the lungs.

In the progress of other mutations, the hydrogen may attract the oxygen, and form water, and the remaining elements



will be carried away, or combined with others in some morbid proportions.

In the present state of science, we may not be able to recognize, or even account for these abnormal additions or subtractions of atoms, but the presence of the new or altered products in the fluids or secretions, may furnish signs of such untoward elementary evolutions.

As the order, number, and proportion of atoms are the same in each proximate principle of every part of the body, so any deviation which produces disorder in the structure or functions of one person, will, *cæteris paribus*, occasion similar disorder in the structure or functions of another.

Hence, as we have classes, orders, genera, and species of animal particles, and of the elements composing them in a state of health, so their variations from that state may distinguish diseases (which are the signs and consequences of these variations) into classes, orders, genera, and species.

During health, the vital principle regulates and determines the natural affinities of regenerative chemical unions, but when that principle is weakened or deranged, then disintegral chemical operations are set up. Translations of one proximate principle into another take place; functional deranged actions arise; deviations from the qualities of the natural secretions ensue; and at last, by reciprocal agencies of these causes and effects, organic alterations are superinduced in the molecules or material of which the glands, nerves, and animal or vital organs are composed.

Thus, errors in regimen will cause the contents of the stomach to ferment, and morbid acids to be generated. These acids will then re-act upon the gastric nerves, and produce irritation; this irritation will cause vitiated secretions from the gastric glands. These corroding secretions decompose and deterge the mucus of the stomach, pain and excitation are thus engendered. The result of this state of things is increased vas-

cularity, condensation of the tunics, congestion of the glands, and, at last, schirrus or cancer may come to be established.

In a work which I published, translated from my Latin Thesis of 1828, in Edinburgh, I urged the importance of chemical investigations to elucidate the nature of many atomic changes evolving among the constituent elements of which we are composed. I shewed how easily the changes of a few elementary atoms would convert fibrine into gelatine, and thus produce a reduction of our animal energy; or *vice versa*, change albumen or gelatine into fibrine, and thus promote the vital actions, increase tone, and determine towards acute diseases and inflammatory excitation. I urged that the formation of fibrine in excess, caused or accompanied the phlegmasiæ, and on the contrary, that deficiency of fibrine preceded, or was concomitant with disorders of debility. I strenuously urged the minute examination of the animal fluids, to discover the untoward results of these chemical mutations.

In the London Medical Journal for February, 1832, in a letter to Dr. Ferguson, then at Sunderland, I offered the opinion, that some of our constituent elements became deranged and liberated by the agency of electricity, and that these atoms sometimes generated prussic acid in our system, as we know they so readily do out of it.

In the same Journal of July last, I observe that certain distinguished Continental physicians have adopted the theory I had published so long before. This encourages me to invite your attention to similar inquiries, in the hope that such investigations may lead to a clearer understanding of the origin and progress of diseases.

Without in the least degree undervaluing the all important changes influenced by the vital powers, there is nothing unreasonable or unphilosophical in attempting to investigate the chemical mutations of organic matter, and the consequent alterations from a state of health to that of a disordered condition.

If we have recourse to chemical agents *for the removal of a complaint*, why are we forbidden to search for chemical causes to explain the rise and development of the malady? We are aware that the operations of nature are regulated by a system of laws; that there is a connexion between the influence of a remedy and the economy of animal life; that various classes of medicines determine effects very nearly similar in results; that almost every mutation is produced by the agency of one kind of matter upon another, and that therefore it is our duty to understand the pathological condition of the structure or functions we desire to improve, how vicissitudes of such condition originated, and in what manner the proposed remedy is expected to dispose the affected part, or the whole system, to assume the natural order previously existing.\* It is true we were deterred by the errors of solidists and humoralists, as well as of those who attached odium to the chemical treatment of diseases, before the doctrine of the atoms was understood. It is also true, that the laws of life so far surpass those which regulate inorganic matter, that we are almost discouraged from entertaining the reasoning of analogy. We are met by the objection of descending to materialism, and dissuaded from venturing to explain physically or chemically those influences which are supposed to depend on vital powers alone.

I shall now proceed to offer a few suggestions on atomic evolutions in the animal economy, submitting my speculations rather to *elicit* than to *impart* information on subjects so extensive, uncertain, and almost unexplored.

If we look to the elementary table, we observe in round numbers, that fifty-three parts of *carbon*, seven parts of hydrogen, twenty parts of nitrogen, and twenty of oxygen are joined together, to constitute one-hundred parts, or atoms of fibrine.

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\* The time is certainly come when we should answer to ourselves these questions, before deciding upon a remedy, *what is this medicine to do? and how is it to do it?*

But suppose that this fibrine shall, by some evolution, acquire three atoms more of oxygen, and lose four or five of nitrogen, it will no longer be fibrine, but go back to albumen. To this, if you add four atoms more of oxygen, and deduct the same number of carbon and hydrogen, you have a conversion into *gelatine*.

In the following proportions (in round numbers) these four elements compose urea, 20 carbon,  $6\frac{1}{2}$  hydrogen,  $46\frac{1}{2}$  nitrogen, and 26 oxygen.

The evolution of cyanogen from our carbon and nitrogen, and its junction with an atom of hydrogen, were already alluded to as the probable origin of hydrocyanic acid in cholera.

In a medical point of view it may be proper to observe, that carbon, hydrogen, and oxygen, are the basis of fat. Obesity may be owing to the undue assumption of nitrogen by some other process or emunctory. Might not the continued use of some highly azotised remedy diminish the disposition to generate fat in excess?

Oxalic acid is generated in our systems by a combination of equal measures of carbonic oxide and carbonic acid; hence its atomic proportions are three of oxygen to two of carbon. The artificial production of this salt is an instance of the easy conversion of one organic body into another. Thus it is obtained from sugar by means of nitric acid. The acid breaks up the integrity of the sugar, deprives it of hydrogen, and in return gives it the equivalent of oxygen capable of turning the sweet and nutrient sugar into the sour and corrosive oxalic acid. When this acid is generated in man, and combines with other elements, it constitutes very injurious compounds: it seizes upon lime from the bones, forming oxalate of lime, a salt very interesting in a pathological point of view; first, as an example of untoward formations in our economy; and next, as being the basis of the worst urinary concretions, such as the *mulberry calculus*.



But all the injury does not end here, for if the oxalic acid takes up a portion of the lime, which either has already formed, or should constitute bone, the osseous proportionals of phosphoric acid will be left in excess, and we shall have a superphosphate of lime, which being a soluble salt, will occasion the bones to become flexible. You may well conceive, Gentlemen, that the victim of these actions and reactions will be a very *rickety* subject indeed. We may here remark that starch, gum, wool, hair, and silk may be converted into oxalic acid, by giving their carbon its atomic proportion of oxygen by means of nitric acid.

The acid called oxalic, furnishes us with three oxalates of potash, in which the acid is in the ratio of one, two, or four atoms. Probably there are other oxalates which we do not know. I have often thought that the extensive modifications of organic chemistry, influenced by vitality, produced many combinations which we have never been able to procure by art. Observe the near relations of the composite proportions of *sour vinegar* and *sweet sugar*; the latter contains nearly forty-three per cent. carbon, with the residue water; four per cent. more of carbon is the only difference, as vinegar contains forty-seven per cent. carbon, the rest water. The composition of sugar and starch are nearly identical. I may here remark that I never saw a case of the evolution of sugar through the urine, but there was a copious formation of vinegar in the stomach.

Whoever takes the trouble to examine the number of chemical changes daily occurring in human urine, must be deeply impressed with this truth, that a great variety of chemical operations proceed in our system, and that these changes are affected by the most delicate interference. This should act as a caution against the extravagant abuse of acids by some, and alkalies by others. In these investigations we are surprised by the numerous alterations of uric acid and its salts. We see that when ammonia is taken from it by some other acid,

we may have the uric acid deposited in crystals, constituting stone, or gravel, and even gout.

This furnishes a proof of the necessity of chemical inquiry, before administering acids without discrimination. Or, on the other hand, the evils of an alkaline treatment may be understood, when we reflect that the *soluble* super-phosphates which would escape in the urine in a liquid state, may be rendered neutral by the improper use of alkalies, and thus converted into an insoluble phosphate, liable to accumulate in concretions and calculi.

Minute analysis of the blood and all the secretions would enable us to detect, and perhaps counteract the progress of many atomic transitions here alluded to, but in particular the investigation of the urine, and comparing its specific gravity, qualities, quantity, and contents, would display the results and precipitates which take place from untoward chemical reactions. If the appearance of these untoward productions were collated with the symptoms at the time, great light would thus be shed upon the signs of morbid processes and changes. Even minute observation of the colour of the urine is an index almost as true as the different hues presented by the tongue, pointing to certain deviations, from the usual operations of nature.

Observe how high coloured is the urine in the whole class of active fevers and inflammations; how pale in the putrid stages of typhus, in dropsy, diabetes, and hysteria; how claret red in diseases of the liver; how yellow in jaundice and biliary obstructions; how white in cases of intestinal irritations and worms; how coagulable when albumen predominates in dropsies and diseased kidneys, and how brown from alkaline reactions. We also see when the excitations of the phlegmasiæ or acute gout, or rheumatism begins to subside, how copious is the brick dust precipitate which the urine exhibits, and the pinky sediment it allows to settle. Altogether I am persuaded if these delicate inquiries were rigidly and industriously con-

ducted by such chemists as I see around me, we might be able to discover certain tests of various progressions of disease, as sure as those with which we discover the presence of poisons, or the various ingredients of mineral waters.

We shall be more ready to admit the varied agencies of remedies, and the unceasing series of conversions and reconversions progressing among the animal atoms, when we reflect that nascent evolutions are alone adapted to produce many results not otherwise attainable ; for instance, we cannot unite azote and hydrogen to form ammonia by art, unless one or both of these gases be in the act of formation at the instant of their junction.

In addition to other agencies, the circumstance of the minute division, which is sure to attend nascent products, must contribute in no small degree towards the mutual exertion of affinities. It is thus that platina becomes red hot and inflamed, if minutely divided, and exposed to a jet of hydrogen, at the same moment forming water by the embrace of its two constituent airs ; but the hydrogen could produce no change on solid platina itself.

In the same manner a substance thrown down from a compound may be dissolved by a third liquid at the moment of precipitation, which liquid could exert no solvent power on the same body in the state of powder, however minutely divided by mechanical means ; thus we cannot cause any affinity between the most impalpable pipe-clay and sulphuric acid, nor overcome the cohesive affinity of the atoms of alumina for each other, but if we precipitate alumina from its solution of a sulphate, by means of ammonia, the sulphuric acid then dissolves the clay at the instant of its nascent freedom. Considerations like these may explain how the same remedy may fail at one time, and succeed at another ; and how infinitely the qualities and constituents of medicines may be modified in their progress through the alimentary fluids.

With respect to the agencies of remedies, that subject is too

extensive for our limited time. But as an instance of others, I my venture to remark, that when we administer a metallic oxide to patients, we may be furnishing to some of their elements such equivalents of oxygen, as may enable them to form perfect atomic compounds, and that the metal itself is only the medium of conveying the oxygen to the system. Mercury, iron, lead, and copper, are considered inactive in their pure metallic state, being incapable of exciting any chemical composition or decomposition, unless in combination with oxygen.

These reflections may not be interesting, but they would be useful, if we could advance from what is known, to what is unknown, and ascertain the pathological conditions in the various classes and orders of diseases.

This knowledge might enable us to modify such evolutions by the exhibition of remedies adapted to alter or correct untoward developments, or noxious products. In that case we could explain the *modus operandi* of medicine, and our profession would no longer appear a code of unstable contradictions, but we could fairly give a reason for the faith that is in us.

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ART. XVII.—*Contributions to Pathological Anatomy.* By ROBERT W. SMITH, A. M., Licentiate of the Royal College of Surgeons in Ireland, Lecturer on Medical Jurisprudence in the Richmond School of Anatomy, and Curator of the Museum of the Richmond Surgical Hospital.

IN the following pages I propose to detail the results of some *post mortem* examinations, which I lately have had an opportunity of conducting, confining myself for the present to the consideration of the more remarkable lesions of the heart and great vessels which have come under my notice.

No. I.—*Fatty condition of the heart. Rupture of the left ventricle. Free oil in the blood.*

Margaret Newman, æt. 90, died suddenly, having previously



complained merely of debility, and the infirmities that "wait on age."

*Inspection twelve hours after death.*—The integuments covering the arms, thighs, and chest, presented large livid patches, and a crepitation was felt in the subcutaneous cellular tissue over almost all parts of the body, but particularly beneath the discoloured portions of the skin: the subcutaneous cellular tissue was likewise loaded with adipose substance of an unhealthy softness, pale and watery. Upon elevating the sternum, air was seen in the cellular tissue of the mediastinum; the pericardium was distended to the utmost, with blood partly fluid, partly in clots; the heart thickly covered with adeps, particularly upon its posterior surface, was soft, pale and flaccid, and globules of air were seen beneath its serous covering, arranged for the most part along the course of the coronary vessels.

Near the centre of the anterior part of the left ventricle, there was a small lacerated opening, about a quarter of an inch in length: the substance of the ventricle was softened, most easily broken by the finger, and of a pale yellowish colour, as if infiltrated with purulent matter; the scalpel was greased in cutting the muscular substance, and upon the surface of the blood, which had escaped from the divided vessels, there floated numerous globules of oil.

The abdominal viscera presented remarkable appearances; beneath the serous investment of the stomach, intestines, liver, spleen, and kidneys, air was extensively diffused; the liver was converted into a semifluid pulp, so much so, that a stream of water poured upon it from a moderate height, washed away the substance of the organ, the vascular structure alone being left; through this disorganized tissue, air and oil were diffused; the spleen and kidneys presented similar appearances to the liver, and all these viscera, along with the stomach and heart, floated perfectly in water. Upon removing the liver from the body, the division of the vena cava gave exit to nearly a table-

spoonful of a clear, perfectly transparent limpid oil, followed by the blood of the vein. I collected about half an ounce of oil from what had escaped from the different organs; but nearly double the quantity might have been procured; several of the larger arteries were ossified; the brain presented no morbid appearance.

The heart and liver are preserved in the Museum of the Richmond Hospital.

**No. II.—*Fatty condition of the heart. Free oil in the blood.***

A woman, æt. 70, was admitted last January into the Richmond Hospital, having been found in the street, lying exposed to the wet and cold, and bearing the appearances of extreme poverty; she died about an hour after her admission.

*Inspection eighteen hours after death.*—In the chest, a considerable quantity of fluid occupied the cavity of the pleura, upon either side; the heart was remarkably soft, pale, and flacid; its substance most easily broken, and its surface covered with a layer of fat, a quarter of an inch in depth; the parietes of the ventricles were thin; the surface of the blood was thickly covered with globules of limpid oil; the blood itself was thin, unhealthy in appearance, and without any disposition to coagulate; the vessels of the brain were greatly congested; the abdominal viscera healthy. \*

The most remarkable example which I have yet seen of the degeneration of the heart into fat, is preserved in the Museum of the Richmond School of Anatomy: it is the heart of a man whose case is detailed by Mr. Adams, in the D. H. R.; he was æt. 68, of a full habit of body, and subject for many months preceeding his death, to attacks of an apoplectic nature; before each of which, he was observed for a day or two, heavy and lethargic, with loss of memory; he would then fall down in a state of complete insensibility. When they attacked him, his pulse, which generally ranged at the rate of 30 in a minute, would become even slower than usual, and his breathing stertorous: he died in one of these attacks. Upon examination of the body, the condition of the heart particularly attracted attention. "The right auricle was

In the course of the numerous pathological examinations which I have had occasion to conduct, I have frequently found the heart loaded with fat, and this deposition always accompanied by softening and flaccidity of the muscular substance of the organ. I have noticed the adipose matter both upon the surface and between the muscular fibres, the latter being in such cases pale, atrophied, and sometimes altogether removed; but the instances above related, are the only ones in which this singular condition of the heart was accompanied by the formation of a free oil in the blood, to the morbid state of which, I think we must refer the rapid disorganization of the viscera, and extensive generation of air noticed in the first case. Andral when alluding to the fatty degeneration of the heart, remarks, in some cases, the appearance is not owing to an actual conversion of the muscular fibres into fat, but to the excessive depositon of fat between them, in consequence of which they become less apparent than usual. In others, however, the muscular fibres undergoes a true fatty transformation, a matter capable of greasing paper and the scalpel, being found not only between the fibres, but infiltrating their texture; it is accompanied by a yellow tinge, like that of decayed leaves. But neither in the writings of Andral, nor those of any other author, is there, as far as I know, any mention of this peculiar condition of the heart being accompanied by that morbid state of the

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much dilated. The right ventricle externally presented no appearance whatever of muscular fibres; it seemed composed of fat of a deep yellow colour, throughout almost its whole substance. The reticulated lining of the ventricle, which here and there allowed the fat to appear between its fibres, alone presented any appearance of muscular structure. The left ventricle was very thin, and its whole surface was covered with a layer of fat. Beneath this the muscular structure was not a line in thickness; it had degenerated from its natural state, was soft and easily torn, and a section of it exhibited more the appearance of a liver than of a heart. The septum of the ventricles presented the same appearance: in both ventricles, even in their lining fibres, yellow spots, where fat had occupied the place of muscular structure, were to be observed.

blood of which the cases I have related presents examples. Such a condition appears to me to indicate the constitutional origin of this peculiar local affection: this opinion I am the more inclined to support, from having found the fatty condition of the heart co-existing with the ossific depositions in the arteries. It is likewise seen accompanying the fatty transformation of the external muscles, a change which has very often fallen under my notice. I lately found in a case of fracture of the cervix femoris, the muscles of the external iliac fossa removed, and their place occupied by true adipose substance. Not a vestige of the glutæus medius, or minimus, remained, a few pale scattered fibres alone existed: the head of the femur and the remains of the neck were so soft as to allow of being easily crushed by the hand, and by pressure, a greasy fluid exuded from the interior of the bone. Still more recently, I found in a case of varus, the muscles of the sole of the foot converted into fat.

The investigation of the nature and causes of the remarkable lesions of the circulatory system above detailed, may, perhaps, receive some elucidation from certain facts respecting the composition of the blood, and the secretion of adeps, which have been ascertained by physiologists. We know, from the investigations of Lecanu and Babington, that oil and fatty matter are always present in the blood, that in fact oil is a necessary constituent of that fluid. "At all events," as the latter writer remarks, "it is found in sufficient quantity in all cases to merit the attention of the physiologist, and cannot, excepting when serum is opalescent or milky, be justly considered as the consequence of disease." It is scarcely necessary to add, that if oil be found free, uncombined, and floating upon the surface of the blood, as in the cases I have related, it must of course be considered as the result of disease.

We likewise have reason to believe, that fat is a secretion from venous blood principally, that it is formed in the course of the circulation, and deposited from the sides of the vessels,



more especially the veins ; we find it formed most copiously wherever the venous blood bears a large proportion to the arterial, while on the contrary, in animals in whom the arterial food is more abundant, fat is rarely deposited.

I may also notice the curious observation of De Blainville, who, while dissecting an elephant that had died apoplectic, found that the blood which flowed from the jugular vein, deposited after a short time a quantity of white greasy matter, which, by analysis, he found to be perfectly formed fat. It is equally well known, that whatever diminishes the activity of the circulatory system, also tends to induce a state of adipose plethora ; when, as Richerand remarks, “the sanguinous system is languid, there is formed a gelatinous fat, and the *embonpoint* is a mere state of bloatedness.” In fact, in all such cases, the assimilating functions are weak, and performed with difficulty.

Bearing these circumstances in recollection, we may, I conceive, look upon the deposition of a pale, gelatinous fat, as indicative and the result of enfeebled powers of assimilation and deficient energy in the circulatory system ; for between the two there is a constant relation, and if the presence of free oil in that system is to be considered as denoting a superabundance of venous blood, we have then another cause, which in addition to the peculiar state of the heart, we can assign to explain the occurrence of apoplectic symptoms in such cases. Cruveilhier, in his admirable plates of pathological anatomy, delineates the morbid appearances observed in a case of fatty accumulation upon the surface of the heart, combined with rupture of the left ventricle ; and I may remark that they perfectly represent the appearances observed in the case of Newman, with the exception, that in Cruveilhier's case, the walls of the ventricles were hypertrophied. It is a disease of advanced life, and generally produces sudden death, either from rupture, which is almost always seated in the left ventricle, or by inducing an apoplectic state ; and it is singular that con-

ditions of the heart, so opposite as hypertrophy and atrophy with fatty degeneration, should both produce apoplectic symptoms. M<sup>r</sup> Adams, in his talented essay upon the diseases of the heart, published in the 4th vol. of the Dublin Hospital Reports, observes that the explanation of the fact will probably "be found in the reflection, that anything occasioning an undue distension of the vessels of the brain, may be followed by apoplexy. This over-distension may arise from the impulse a tergo being preternaturally strong, or on the contrary it may be the result of some obstruction in front, as that arising from a contracted arterial opening, or some state of the ventricle, incapacitating it from emptying itself with sufficient quickness to relieve the brain;" and he imagines, "that although the *quality* of the blood may have some influence, it is probable that the principal causes determining an apoplectic attack, when the heart is either actively enlarged or in a state of atrophy, are mechanical, and referable to circumstances in the heart, directly or indirectly producing a state of *congestion* of the vascular system of the brain."

Many writers do not admit that the fatty condition of the heart and rupture of its substance, bear to each other the relation of cause and effect; and perhaps with some justice it would probably be more correct to say, that both these lesions are the result of the same constitutional cause; of course one may occur without the other, and either alone may prove fatal; but still I conceive that the same enfeebled condition of the assimilating functions, the same want of energy in the circulatory system, which so often induces a bloated state of the body, and inordinate deposition of unhealthy adipose matter in the internal organs, likewise tends to the production of softening and consequent rupture of the heart.

Some authors indeed, consider ramollissement of the heart as almost a necessary consequence of old age, and Bland in particular is of opinion, that this degeneration is the essential

cause of the rupture which so frequently occurs at an advanced period of life, and which he terms "Dechirement Senile."\*

No. III.—*Cartilaginous transformation of the heart.*

Peter M<sup>r</sup>Keon, æt. 45, a lunatic, for a long time subject to epilepsy, died during a convulsion.

*Inspection.*—The cerebral vessels were distended with dark blood, the cavity of the left ventricle of the heart was slightly enlarged and its parietes diminished in thickness: the muscular substance had completely lost its natural colour and consistence, particularly towards the apex of the ventricle; it was converted into a dense, white, firm, cartilaginous structure, the division of which with a scissars required the employment of considerable force; the alteration of structure had extended to some of the *carneæ columnæ*; the auricles were hypertrophied; there was no other morbid appearance either in the chest or abdomen.

No. IV.—*Ossification of the pericardium.*

James Nugent, æt. 39, subject to cough and dyspnœa (which for four years preceding his death rendered him unable to bear much fatigue,) sent for me on the 26th of last April. I found him labouring under the general symptoms of disease of the heart; his countenance was bloated and livid; there was extreme dyspnœa, abdomen tympanitic, pulse feeble, rapid and indistinct, jugular veins distended; the submucous tissue of the conjunctiva was infiltrated with serum, producing a large chemosis which concealed the margin of the cornea; the bowels were constipated, and the skin had a yellow tinge; there was no œdema of the lower extremities: he died on the 30th of the same month.

*Inspection.*—*Abdomen.*—The intestines were distended with air; the spleen was more than double its natural size, and the lower part of its capsule was converted into cartilage; the liver presented an example of hypertrophy of its yellow tissue, while

the whole organ was diminished in size, its investing membrane thickened, and a large portion of it upon the convex surface of the right lobe, had suffered the same cartilaginous change noticed in the spleen.

*Chest.*—The lungs, which were gorged with blood, every where adhered to the thoracic parietes; the costal pleura was increased in thickness, and upon the left side, bone was deposited in the subserous tissue; the pericardium was united to the surface of the heart by close and old adhesions, and around the base of the organ, bony matter was deposited in considerable quantity, apparently between the two serous layers of the pericardium, it formed an osseous belt, surrounding nearly the entire of the base of the heart; its surface flat and rough, its margin irregular and waving, and its average breadth about one inch; this bony girdle penetrated into the substance of the ventricles, and reached in some parts almost to the lining membrane of the latter. The parietes of the auricles were increased in thickness, in some situations the hypertrophy amounted to nearly a quarter of an inch; there was no remarkable alteration in either the cavity or walls of the ventricles, the blood in the heart was fluid and dark coloured.—*Museum, Richmond Hospital.*

The instances of cartilaginous or osseous transformation of the muscular substance of the heart, with which we have been furnished by authors, are as yet few in number; it has been noticed by Haller and Covisart, but the most remarkable cases have been recorded by Burns and Renauldin. The case of Margaret Henderson, æt. 60, mentioned by Burns, is, I am sure, well known; in this case, it is worthy of remark, that the patient never was affected with palpitations or pain in the region of the heart; after death the pericardium was found adherent to the heart, and ragged spiculæ of bone projected from its surface, the entire of the pericardium covering the ventricles; the greater part of the ventricles themselves, and some of the carneæ columnæ were ossified and firm as the skull, the os-



sified part formed a broad belt around the ventricles of the heart. Renaldin, in Corvisart's Journal, has given the case of a man æt. 33, in whom this remarkable alteration was noticed; great resistance was found on attempting to cut the left ventricle, in consequence of its walls having been converted into an osseous structure, extending from the surface of the ventricle to its fleshy columns; osseous deposits were also found in the temporal, maxillary, and radial arteries.

In the case of M'Keon which I have detailed, I think we must refer the occurrence of convulsions to the alteration, which the substance of the left ventricle had suffered; a change, which must, in a great measure, have destroyed its contractile power, and retarded the passages of the blood from the cerebral vessels, in consequence of which they suffered from over distention, just as we have seen to occur in the case of fatty degeneration.

Ossification, though so frequently met with in other similar structures, is a rare alteration in the pericardium; it was only once observed by Lænnec; it occurred in the case of ossification of the heart, mentioned by Burns; Senac and Baillie each met with an example of it, and Mr. Adams, in the valuable paper to which I have already referred, details the particulars of a case, in which this singular alteration was noticed. In the instance noticed by Lænnec, "the heart was enlarged and adhered throughout to the pericardium, by means of very close cellular attachments. On first touching it, it seemed to be enclosed in a bony case, situated beneath the fibrous membrane of the pericardium, but on further examination this incrustation was found to be incomplete. Around the base of the ventricles, there was a zone or band, partly bony and partly cartilaginous, of from one to two fingers breadth, of unequal thickness, flattened, yet somewhat rough on its surface. This band projected into the angle between the ventricles and auricles, and extended along the interventricular septum on both sides to near the apex of the heart." The bone was deposited between the

fibrous and serous layers of the pericardium, and the size of the auricles surpassed that of the ventricles. In the case detailed by Mr. Adams, the heart enlarged and adhered to the pericardium, was nearly encircled by a zone of bone, about three lines in thickness, and more than an inch in breadth; it was deposited between the fibrous and serous layers of the pericardium, sinking into the muscular tissue in some parts, and penetrating almost to the lining of the ventricle.

Now in these and all similar cases, it is, I think, obvious that the osseous deposit is the result of chronic inflammation; in every instance the pericardium has been found closely adherent to the heart, and the false membrane which forms the uniting medium, appears to me to be the seat of those subsequent alterations which terminate in the deposition either of cartilage or of bone; this is also the opinion of Burns, who considers the ossification to be merely a concomitant effect resulting from a common cause. A more interesting question for discussion, and one at which I can only glance, presents itself, however, in reflecting upon these cases; viz. what is the relative influence of the auricles, the ventricles, and the arteries upon the due performance of the circulation? Such cases as those recorded by Burns, as well as that of McKeon, which came under my own observation, certainly tend to undervalue very much the aid which the circulation receives from the ventricles; they show that the ventricles may be ossified, hard as the skull and rigid as stone, and yet the circulation be carried on. The auricles pour their blood into these rigid cavities, which being in a great measure incapable of contraction, cannot empty themselves, and the blood remains or tends to regurgitate, until a fresh impulse from the auricles sends a portion of it into the arteries, which then carry on the circulation by their own re-action. A full consideration, however, of this interesting question, would lead far beyond the limits to which I must at present confine myself; to do it justice, it would be necessary to take a review of the circulation in the lower classes

of animals, in monsters, where the heart or some of its cavities are wanting, and to consider many morbid conditions of the circulating system. I may, however, remark, that if the history of these cases shews that the circulation may be carried on with ossified ventricles, it also demonstrates that the vascular actions are extremely precarious and liable to be disturbed, or altogether stopped by a very trivial cause; as Burns has remarked, "the action of such a heart is unharmonious and easily deranged, it can only act efficiently, while the circulation remains undisturbed." The case detailed by Mr. Adams fully exemplifies the truth of this remark; neither has the circumstance escaped that gentleman's notice.

Two men, each apparently about 60 æt., had been exposed for some time to the fumes of charcoal; they were brought into Sir P. Dun's Hospital in a similar state of exhaustion; their bodies were warm, but respiration had ceased for a few moments in both; by the application of the usual means, both in a short time recovered, one completely, but the other, after exhibiting signs of life for two hours, expired. I have already detailed the particulars of the *post mortem* examination: in his remarks upon the case, Mr. Adams observes, "if the three important organs, the heart, the brain, and the lungs, the 'tripod of life,' as they have been aptly denominated, be not all equally strong at a time when animation has been accidentally suspended, the weak one cannot be roused to resume its functions. Thus, under such circumstances, what might have been supposed a simple faint, has terminated in death, and I think in the case I have just given of ossification of the pericardium, in such an altered structure, was to be found the cause of death, as a man placed exactly in similar circumstances, but whose organs were sound, survived." In short, in all such cases, the auricles are excited to a degree of action incompatible with their power, and this excitement may be pushed to such an extent, as to terminate in a total cessation of action.

No. IV.—*Aneurism of the ascending aorta. Projection of the sac into the ventricles.*

Patrick Priest, æt. 30, was admitted into one of the hospitals of the House of Industry, labouring under the general symptoms of disease of the heart, which had existed for a long period. No accurate information could be obtained of the origin or progress of the complaint, the patient having been only seen upon the day preceding his death, when he was unable to submit to any lengthened investigation. His lips were livid; his respiration impeded; and the countenance, which expressed great suffering, though pale, had a faint purple suffusion. The little sleep he occasionally enjoyed could only be procured by sitting up in bed. The pulse was imperceptible at the wrists; the action of the heart itself obscure; the sound elicited by percussion was dull throughout the sternal region of the chest, and for some distance upon either side. The lower extremities were cold and œdematous.

*Inspection.*—On elevating the sternum the pericardium was found distended, so as completely to conceal the lungs from view; throughout the greater part of its extent it adhered closely to the surface of the heart; the origin of the aorta appeared dilated; and at the base of the heart, two tumours, each about the size of an egg, were noticed elevating the pericardium, and corresponding, the one to the base of the left, the other to the upper and inner portion of the right ventricle. These two tumours, which together formed an aneurismal sac, were slightly separated by a depression corresponding to the pulmonary artery, the passage of which across the centre of the sac, confining it in this situation, seemed to have caused its lateral enlargement and partial subdivision.—(See Plate, Fig. 1.) The right portion of the sac was fully exposed by cutting into the corresponding ventricle; it was seen forming a conical tumour of considerable size close to the origin of the pulmonary artery, (Fig. 1. *b.*) projecting into the infundibulum of the ventricle. The left division of the sac had encroached considerably upon



the upper and anterior part of the left ventricle, diminishing, to nearly one-half, the distance between its base and apex, (Fig. 1. *a.*) it was separated from the cavity of the ventricle by a thin partition, which was in a great measure unsupported by laminated coagula. The sac communicated with the aorta by a rounded opening, about the size of a shilling, placed about an inch above the valves, and leading downwards and forwards into the aneurismal cavity. The aorta in the vicinity of the opening was rough and unhealthy.—*Museum, Richmond Hospital.*

This interesting case is a sufficient refutation of the opinion of Bertin, Scarpa, and other writers upon aneurism, viz. that this disease does not and cannot form in any part of the ascending aorta, because there is no cellular structure to form the sac. We are not, however, limited to one case for the proof of the incorrectness of this statement, as the following extract from Mr. Guthrie's valuable work upon the Diseases and Injuries of Arteries will show. "In Mr. Hunter's collection there is an aneurism of the very commencement of the aorta cut open: the semilunar valves bounding the edges of the opening for the admission of blood from the heart, are distinctly seen forming a part of the walls of the sac, with the orifice of one coronary artery, which is situated in the only part of the aorta that is not dilated, being a portion of half an inch in width, and one inch in length, extending upwards, when the vessel resumes its natural appearance of ascending aorta. The aneurismal sac arising from this small portion of the artery, is dilated downwards for five inches in length, and at least four in its different transverse diameters, forming a cavity, when distended, twice as large as a common sized fist. It adheres firmly to the side and posterior part of the right ventricle, and extends even to the diaphragm." In the seventh vol. of the Dublin Medical Journal, Dr. Hanna has recorded a case somewhat similar to that which I have detailed: the aneurismal tumour formed in the external wall of the left ventricle, sprung from one of the sinuses of the aortic valves.



## EXPLANATION OF THE PLATE,

*Referred to in Mr. Smith's Contributions to Pathological Anatomy,*  
p. 411.

### CASE OF PATRICK PRIEST.

*Fig. I.* a Left portion of the aneurismal sac.

b Right portion of do.

c Pulmonary artery.

d Left ventricle.

e Right ventricle.

*Fig. II.* a Opening from the aorta into the sac.

### CASE OF EDWARD M'GOWRAN.

*Fig. III.* a a Separation of the lining membrane and middle coat of the aorta from the external tunic.

b Opening in the external tunic, by which the blood flowed into the pericardium.

In these three instances the aneurism arose from the aorta within the pericardium, close to the sigmoid valves, and in all followed a similar and remarkable course, passing downwards, and encroaching upon the cavities of the heart. In the case of Priest, the entire of the tumour was below the level of its opening into the artery. From this similarity of direction I think we may infer that the cause was similar, and one which would in the same way affect the course of all aneurisms, springing from the aorta within the pericardium in the vicinity of the valves; and I imagine that a cause adequate to the effect presents itself in the consideration, that the opening from the artery into the sac was placed within the influence of the retrograde flow of blood, both weight and impulse of which would tend to direct the tumour downwards; and in the case which I have related, the appearance of the opening favours this opinion, (see Plate, Fig. 2,) the lower part of its circumference being thick, rounded, and well defined; while above it presents no defined edge, but gradually slopes from the interior of the aorta to the front of the tumour.

Had the sac yielded where it projected into the right ventricle, there would have been formed a varicose aneurism, of a new and extraordinary description, and I should think not of necessity at once fatal. Mr. Syme has recorded in the *Edinburgh Medical and Surgical Journal*, vol. xxxvi., the particulars of a case, in which a communication was thus established between the abdominal aorta and the vena cava inferior. In October, 1830, the patient, in whom this remarkable lesion was found, complained of throbbing in the epigastric region, pain in the back, and an incessant whizzing noise in the abdomen; the feet were cold, and the lower extremities and generative organs became œdematous to a very great degree. He died four months after the commencement of these symptoms. Upon examination of the body there was found an aneurismal tumour, as large as an orange, situated at the bifurcation of the aorta, and communicating by a free opening with the vena cava inferior.



No. V.—*Dissecting aneurism, opening into the pericardium.*

Edward McGouran, æt. 24, while engaged in his daily employment as a blacksmith, suddenly became pale, fell, and expired immediately. He had for some time previously complained of dyspnœa, and never had been a strong man.

*Inspection.*—Upon elevating the sternum, the pericardium was seen distended to a great size, and when it was laid open a quantity of blood, partly fluid, partly in clots, was given exit to. The aorta having been laid open, along its concavity there was noticed a longitudinal rupture of the lining membrane, commencing close to the free margin of the valves, and extending upwards for two inches, and thence passing transversely, so as to encircle nearly the cylinder of the artery. The lining membrane along the margin of the rupture was separated from the middle coat, and near the junction of the longitudinal, with the transverse portion of the rupture, all the tunics of the vessel had yielded, and through a very small oval opening the blood had flowed into the pericardium.—(See Plate, Fig. 3.) The aorta was dilated from its origin to that of the arteria innominata, and its valves stretched in proportion; each valve, from point to point, measured two inches. The lining membrane of the dilated aorta presented in many parts traces of disease, resembling ulceration; and in one situation there existed a fine hair-like fissure, running longitudinally for about half an inch; the parietes of the aortic ventricle were thickened, and its cavity enlarged; the vessels of the scalp were turgid, and in the brain was noticed venous congestion.—*Museum, Richmond Hospital.*

No. VI.—*Dissecting aneurism, opening into the pericardium.*

Mary Cruise, æt. 70, was admitted into one of the hospitals of the House of Industry, for chronic rheumatism and bronchitis. In the course of about two months she was so far relieved as to be considered convalescent, when suddenly she was attacked with pain in the region of the heart, dyspnœa, and fainting; the countenance became bloodless, the surface cold, and death almost instantaneously took place.

*Inspection.*—A transverse aperture, about half an inch in length, and the same distance above the origin of the aorta from the ventricle, was found in the lining membrane and middle coat of the former; it conducted into a space formed between the middle and external tunics, by which it was upon all sides bounded. Into this space the blood had passed, dissecting the external from the middle coat, as high as the origin of the arteria innominata; and ultimately it escaped into the pericardium by a ragged aperture, situated near the reflexion of its serous layer.—*Museum, Richmond Hospital.*

In the Museum of the Richmond School of Anatomy there is also an example of dissecting aneurism of the aorta, which has opened into the pericardium.

This remarkable form of aneurism, usually termed the dissecting aneurism, was first noticed by Laennec, and cases of it have since been recorded by Mr. Shekleton, in the Dublin Hospital Reports, vol. iii., and by Mr. Guthrie, in the work before alluded to.

The two examples of it which Mr. Shekleton met with were, however, quite different from the more usual form of the disease. The aneurismal sac in both of these cases “communicated with its own artery by a distinct opening, at some distance from the regular opening of the artery into the sac, and thus two channels for the blood into the artery beyond the aneurism were established, the one through the canal of the artery, as in common aneurism, the other through the sac:” in both cases the disease was situated in the abdominal aorta and iliac arteries. In the instance recorded by Laennec there was found, about two inches below the commencement of the descending aorta, a transverse aperture, occupying two-thirds of the cylinder of the artery, and penetrating through the lining membrane and middle coat; the external coat was healthy, but separated from the middle coat, from the opening down to the origin of the common iliac arteries, to which, as well as to the trunk of the cæliac artery the separation had extended: there was thus

formed an oblong sac, which was in many places crossed by the intercostal and mediastinal arteries, and contained coagula of blood. Mr. Guthrie has also reported a case in which he found, just below the origin of the innominate, the inner and middle coats ruptured for half the circle of the aorta, on the great curvature, as clean as if cut with a knife, and in a straight line around; the effused blood separated the outer from the fibrous coat, down to its origin, along the forepart, and around the great curvature to the back part, dissecting thereby two-thirds of the artery. The separation extended to the innominate, all the coats of which having given way, a fatal hæmorrhage resulted; the dissecting process was continued for an inch beyond the left subclavian on the descending aorta.

It is difficult to explain how this species of aneurism is formed, or to speak more correctly, to assign the causes which determine the production of a dissecting aneurism in preference to the more usual forms of the disease: for with respect to the mode of its production it is, I think, obvious, that previous to their separation being accomplished, the arterial tunics, as well as their connecting medium, must have suffered from disease of a chronic character, and unaccompanied by decided symptoms, and inducing, most probably, thinning of the coats of the vessel, commencing from within. Now if we can suppose this diseased action, whatever may be its nature, to affect merely the lining membrane and middle coats, without impairing, at least in the first instance, the strength and elasticity of the external tunic of the artery, it is probable that this species of aneurism would be the result; and this opinion appears to me to derive confirmation from the conditions of the arterial tunics noticed in Mr. Shekleton's dissections, in both of which it was particularly observed, that the cellular coat was remarkably dense and strong, so much so that the blood having forced its way between the middle and external coats, was effectually resisted in its further progress outwards, and was compelled to seek an inlet into its natural channel, by a second opening in

the middle and internal coats, two or three inches below that which afforded it an outlet; and in the case mentioned by Laennec he expressly states, "the external coat was perfectly healthy in the whole length of the aorta, and particularly opposite the part where the inner and middle coats had given way."

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ART. XVIII.—*Observations on the Sudden Death of Children from Enlargement of the Thymus Gland.* By W. F. MONTGOMERY, A.M., M.D., Professor of Midwifery to the King and Queen's College of Physicians in Ireland.

THE fact that children, apparently in good health, sometimes die suddenly, that is, in the space of a minute or so, is too well known to render any thing more than the mere allusion to it necessary; but the cause, or at least one of the occasional causes, is not so well understood. I have now seen several instances of a very singular mode of death in children, and there are some gentlemen in this city who have witnessed the cases with me and seen the results. I allude here to those cases in which young children are suddenly cut off by an undue enlargement of the thymus gland.

A minute account of the form, structure, and relations of the thymus gland, would be here misplaced, and does not appear necessary, but as there may be some to whom the matter may not be so familiar, I trust I shall be excused for touching briefly on this point. The thymus gland is a peculiar body, discoverable in the foetus about the third month of intrauterine life, and in the fourth month presenting itself as a distinct organ occupying the upper and anterior part of the thorax. About the time of birth it possesses considerable size, and is lodged behind the superior part of the sternum, lying over the lungs and heart. It covers a considerable portion of the lungs and pericardium, passes through the superior



aperture of the thorax, and extends upwards as far as the thyroid gland; part of it is therefore confined by a bony case, and part of it free; being covered in the neck merely by the integuments, and a thin layer of muscular substance. Its tissue is soft, loose, and pulpy, and contains a vast number of small cells opening into a large central reservoir. This reservoir is as large in proportion to the gland, as one of the ventricles is to the heart, and is very well represented in one of the plates in Sir A. Cooper's work.\* The cells of the organ are filled with a whitish or cream-coloured secretion, which has some of the properties of chyle. The parenchyma of the gland is very soft, spongy, and highly distensible. Its supply of blood is also very remarkable. This is furnished by four large arteries, of which the two superior are generally branches of the thyroid arteries, the two inferior ones are derived from the internal mammary. Its veins (and this is a point deserving of attention) are also divided into two sets, the upper opening into the thyroid veins, the lower emptying themselves into the left vena innominata.

The thymus gland is then a soft, spongy, and highly distensible organ, forming in the newly born infant, a mass of considerable size, situated in the upper part of the thorax, and extending up the neck as far as the thyroid gland, partly free and partly confined, lying over the pericardium, lungs, and the roots of the great vessels, abundantly supplied with blood, and capable from its position of exercising, under certain circumstances, a considerable degree of pressure on the trachea and left vena innominata. Its ordinary weight at birth is about half an ounce or 240 grains.

If we examine the superior aperture of the thorax, and observe that in this situation we have the trachea, œsophagus, the great arteries of the head and upper extremities, the venæ innominatæ, and the phrenic and pneumogastric, recurrent, and

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\* On the Anatomy of the Thymus Gland, Plate IV. fig. 6.

sympathetic nerves; if we reflect also that in this situation we have an organ of considerable dimensions, and capable of great distention, we can easily understand that any deviation in point of size will produce important results with respect to the condition of the surrounding organs. In the natural condition, this gland does not produce any inconvenience; but when it becomes enlarged either from temporary and accidental causes, or more permanently from disease, so as to exercise a sudden or inconvenient pressure on the surrounding organs, we should expect corresponding changes in the condition of these parts. Hence it is, that enlargement of the thymus gland is frequently connected with sudden and remarkable alterations in the state of the great vessels, heart, lungs, and brain.

Having mentioned these facts, I shall proceed to detail a few cases of this remarkable affection. The form in which I have observed it myself, and in which it has occurred to others, is this: Children in apparently good health, and who have even attracted attention by their florid complexion and high condition, are observed when thwarted, frightened, awaking from sleep, or swallowing, or when under the influence of any mental emotion, to become all at once violently agitated, the hands are thrown up, the features become fixed, the eyes staring, and the breathing suspended; in a short time the fit ceases, and respiration and vital power are restored, or the infant drops its head on the nurse's shoulder and dies. The first thing which occurs when the paroxysm ceases, is a slight fine whistling inspiration, as if the respiratory act was for the first time established.

The first time my attention was directed to this subject was on receiving about seven years ago from Dr. Neason Adams of this city, an enlarged thymus, of which he has given me the following account: The child from whom it was removed began to be affected when eight months old, with what was considered spasm of the glottis, and under the Doctor's judicious treatment, got so much better, that it was not thought necessary to con-

tinue the administration of the remedies employed ; the attacks, however, returned, and a repetition of the former medicines was about to be sent for ; but one morning when at the breast, and apparently as well as possible, its head dropped back on the mother's arm, she immediately ran towards the window, but before she could get there, every sign of life had ceased, without fit or struggle of any kind.

Another case communicated to me by the same gentleman, is most painfully interesting. The child was brought to the Doctor, that he might see the great amendment that had taken place in its state of health, and to have the gums examined : which latter examination he declined, as the attempt had, on two former occasions, brought on a paroxysm. The mother not being satisfied, and anxious to have the gums examined, undertook to separate the jaws of the child ; doing so brought on the attack, and in an instant the child was corpse in her arms.

The next case was one which occurred in my own practice. It was the child of a lady, who had been herself very delicate in childhood, and was of a rather feeble habit in after life. She had also been subject to some affection of the throat, the nature of which I could not ascertain. The child, which was a boy, was born in August ; about three weeks after his birth he appeared agitated and affected in his breathing when startled or awaking from sleep. This was at first regarded as accidental, but as the fits continued to recur at intervals, the parents took the alarm, and sent for me to see him. I saw that there was something wrong, and endeavoured to find the cause, but could not discover any thing in the chest or elsewhere, to account for the occasional affection of the respiration, and the child was, in other respects, handsome, healthy, and thriving. The first severe attack it had, was on Dec. 10, at night ; the child awoke suddenly, started, screamed, and threw up its arms. When lifted up, it stared with an expression of wildness and distress, its features were fixed, and the respiration entirely suspended. On throwing up the window sash, and letting in a

stream of fresh air, it began to breathe, but with considerable difficulty, and the agitation continued for several hours. On seeing the child I thought that the sudden suspension of respiration might be connected with an affection of the brain, and under this impression, prescribed some calomel powders, and a blister to the nape of the neck, which produced relief. The next attack which it had, was Dec. 13, in giving it some medicine. The nurse threw it on its back, held its hands, and tossed the medicine down its throat. A fit similar to the former, and still more alarming, was the almost immediate consequence. After this it was put under a course of medicine by Dr. Harty and myself, and appeared to be going on very well. The last attack was on the 27th of January, at which time the child was five months old, and apparently in the most perfect health. The child's grandfather was about to proceed to a levee at the Castle; the infant appeared to be highly delighted with his dress, which was very splendid, and was brought by the nurse to see him get into his carriage. It was brought back to the drawing-room delighted and jumping in the nurse's arms; when suddenly it stared wildly, made a violent convulsive effort, dropt its head on the nurse's bosom, and expired. Medical assistance was instantly called in, but the vital spark was entirely extinct, and every attempt at resuscitation was fruitless. On dissection, at which Dr. Harty and Dr. Marsh were present, the thymus gland was found greatly enlarged, and, from the quantity of blood which it contained, of a deep crimson colour. The ordinary size of the thymus gland in infants is known to most practitioners, and will be found very well represented in Sir A. Cooper's plates. In the natural state it is about two inches in length, an inch and a half in breadth, and a quarter of an inch in thickness. In this child it was three inches and a quarter long, nearly three inches in breadth, and fully three-fourths of an inch in thickness. I did not weigh it, but I am sure it weighed at least two ounces, and when we recollect that the ordinary weight is about half an ounce, the enlargement in this instance will appear very considerable.



The next instance in which I had an opportunity of observing this affection, was in the child of a physician in this city. This case was one of extreme interest and concern to the family, for the child's eldest brother had died of an attack of the same disease; and it is still more interesting in a practical point of view, as the detection of the disease led to the adoption of a successful plan of treatment. The following circumstances are given from a letter which I received from the child's father:

"The eldest of my children, (William,) who suffered from the affection your note refers to, was a remarkably fine, healthy, placid looking child, up to five months old; about that age, (in Dec. 1830,) he was seized while asleep with what appeared to be convulsions. His face was swollen; his eyes fixed; his breath spasmodically retained; he gasped and struggled for some time, and when he at length recovered his breath, he uttered several sharp cries as if in much distress. The attacks soon became frequent, and generally occurred during sleep, when fretted, agitated, or frightened by any sudden noise or motion, or whenever his breath was from any cause obstructed, but sometimes also when smiling and playful. The fits used sometimes to last so long, that his face became nearly black from the obstruction of his breath, and one which lasted only a little longer than the others, suddenly deprived him of life. He had been a moment before cheerful, and apparently free from all illness. He died at the age of eight months, having been ill three." The second child was attacked for the first time in the eleventh month of his age, (March 1834,) having been previously remarkably healthy. In his case, the upper part of the sternum projected in a remarkable manner, as if forced outwards by the pressure of the enlarged thymus gland which could be felt. The paroxysms were well marked, but not so severe as they had been in his brother, nor recurring at such short intervals. The treatment adopted in this case was the following: a few leeches were applied over the situation of the enlarged gland, in order to diminish its vascularity and

hypertrophy, and afterwards a small blister, which was kept open by proper dressings. The ointment of hydriodate of potash was rubbed in around the part, and medicines were administered to regulate the state of the bowels; a good but not stimulating diet, country air and sea-bathing were advised. Under this plan of treatment the hypertrophy of the gland was soon reduced, and the paroxysms had completely ceased at the end of a month. He is now more than three years old, remarkably healthy and stout, and the projection of the sternum has entirely disappeared. I was happy to have the assistance of Dr. William Stokes in this case.

With respect to the conditions of other organs as connected with this affection, the following circumstances have been observed on dissection: A very curious state of the heart has been detected; this organ being found quite empty, without a particle of blood or coagulum, contracted in its dimensions and as it were puckered on itself. In the head a quantity of serous fluid has been frequently discovered, and hence such cases have been pronounced cases of hydrocephalus, although none of the symptoms of the latter affection were observable during life. Now if we bear in mind, that the position of the gland is such that when enlarged it must greatly obstruct the return of blood from the head, and reflect on the effect which this must have on the capillary origins of the veins, we can easily understand why serous effusion should be as natural a consequence, as ascites from enlargement of the liver, or anasarca of the extremities from a pressure of a gravid uterus, or an enlarged ovary. Enlargement of the mesenteric glands has been very frequently found in connexion with this disease.

But a question of more importance is, how does the enlargement of the gland produce the fatal result? I think the matter admits of a satisfactory explanation. Enlargement of the thymus gland may occur in three different ways. In the first place it may be the effect of simple hypertrophy, connected with general plethora, occasioned principally by over feeding.

Sanguification goes on actively, and a large quantity of blood is sent to all the glandular organs, and among the rest to the thymus, by which its substance is hypertrophied, and its vessels distended with blood, so that its cells become loaded with the fluid peculiar to them; and in this way the volume of the gland may be considerably increased. In the second place the enlargement may be connected chiefly with the disproportion between the size of the gland, and the capacity of the superior aperture of the thorax.\* Lastly, the gland may be enlarged as the result of actual disease.† The same form of scrofula which is observed in other glandular organs, may also attack the thymus; and it is well known the disease in question is most apt to occur in children who have exhibited scrofulous affections of other parts.

We now come to examine another part of the subject, namely, the mode in which this enlargement may thus suddenly impede the functions of respiration, circulation, and nervous energy, and thereby destroy life, which appears to me to be thus: Supposing

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\* While writing these observations I was requested to examine the body of an infant aged five months, son of an esteemed medical friend. The child was taken out of bed at seven o'clock in the morning, was fed, and again laid in its cradle, appearing to be perfectly well; but in a few minutes the attendant thought there was something unusual in the sound of its breathing, and on approaching it appeared to be dying, which was the fact; in a few minutes it expired without a struggle. On examination no remarkable morbid lesion could be discovered which would satisfactorily account for its death. There was serous effusion on the surface of the brain, one hemisphere of which was more transparent and gelatinous than usual; the upper aperture of the thorax appeared to me of unusually small dimensions; the thymus was not enlarged, but it was very hard from the deposition of a firm tubercular matter in its substance, and the part of the trachea over which it lay, was distinctly flattened; there was also very extensive mesenteric glandular disease, and the heart was empty and wrinkled. I am strongly impressed with the belief that in this case, diminished space in the aperture of the thorax, conjoined with the indurated state of the thymus, led to the fatal event, in a manner analogous to that which would be the result of hypertrophy of the gland.

† Several instances of such diseases are detailed in Cruveilhier, Portal, Lientaud and others.

any cause to occur capable of producing agitation or strong mental excitement in the child, and that the gland has been previously enlarged, and capable of great distention, a number of circumstances will occur which combine in rendering that distention still greater, and increasing the size of the gland in such a manner as to affect materially the condition of the surrounding parts. Any cause, producing agitation on the part of the child, excites the heart's action, the enlarged gland becomes distended and increased in size, presses on the vena innominata, and prevents the return of blood from the head. The same pressure prevents the venous blood of the thymus itself from getting into the innominata, and thus becomes a fresh source of distention. The combined result of this is great and dangerous pressure exercised, on the great vessels, preventing the return of blood from the head, and thereby suddenly producing cerebral congestion; on the trachea, by which respiration is impeded; and on the important nerves in that situation, especially the sympathetic, the par vagum, and its recurrent branches, any interference with which has been proved by the experiments of Dr. Alcock of this city and others, most powerfully to influence the function of respiration; and Le Gallois found that in young animals the division of the recurrents was sufficient to cause almost immediate death. This latter agency, especially when exercising its influence in conjunction with the others just mentioned, it seems to me reasonable to believe, must contribute to the remarkably rapid extinction of the powers of life. The affection, at least, must be different from either ordinary apoplexy or suffocation, for it happens in an instant: while you are looking at the infant it droops its head and dies, and generally without effort or struggle of any kind. It may be also that in this case the ascending cava does not supply a sufficient quantity of stimulus to the heart, while at the same time the compression of the brain, by interrupting the nervous influence, tends to superinduce paralysis of that organ. Kopp attributes the sudden death in these cases to the pressure on the air tubes.



With respect to the treatment, it is either immediate or preventive. When a paroxysm comes on, the child should be placed in the upright position, with the head slightly inclined forwards, and in this way exposed to a full draught of fresh, cool air, while cold water is at the same time sprinkled over the face. Every means should be taken to remove as far as we can the compression from the veins and nerves, as well as to relieve the oppressed action of the respiratory system. When children are subject to fits of this kind, food should never be given by laying them on their back, and tossing the food down their throat, for this is very apt to bring on a paroxysm; and they should never be rudely awoke, or roused suddenly from sleep.

With regard to the treatment to prevent the return of the disease, we should adopt such a plan as would have the double effect of removing hypertrophy and local congestion, and improving the tone of the general system. Our curative measures must thus be directed in part, locally to the situation of the enlarged gland, the reduction of which we should aim at by the application of leeches, blisters kept running, or frequently repeated, and discutients, such as ointments containing iodine; while we give internally aperients, of which those that contain mercury, especially calomel, have been found most serviceable. In some cases antispasmodics and sedatives will do good, such as musk, camphor, assafoetida, preparations of zinc, especially the cyanuret, have been extolled by some, and the cherry-laurel water, in combination with depletion, has been used with advantage. Along with such measures we should, if possible, adopt removal into the fresh air of the country, sea-bathing, and a carefully regulated system of diet, which should be good, but of a kind not likely to stimulate. In weakly debilitated children, minute quantities of sulphate of quinine continued for some time, are productive of great benefit.

In October, 1834, I saw, in consultation with the Surgeon General, the infant child of Mrs. L., aged seven weeks, who had had three or four paroxysms of this affection. One of them

very severe, lasting so long that the nurses thought the child must have expired before it could recover its breath, and for several hours it appeared in great distress; the child was in every respect the very picture of perfect health, and all the functions proceeding with the greatest regularity; but it appeared to me that the situation of the thymus gland was fuller than it ought to be, and on this view I acted. I had a leech applied near the part, which I directed should be diligently rubbed with a discutient and slightly irritating liniment twice a day, and administered, internally, calomel combined with jalap. This plan of proceeding being approved of by the Surgeon General, was continued, and the child had no return of the attack.

It should be mentioned that in most cases where benefit is derived from the treatment adopted, the recovery is very rapid, being not unfrequently complete within a few weeks.

In cases of this kind much blame is attributable to the system of excessive repletion adopted or permitted by mothers, whose over-anxiety for the child's welfare leads them to indulge it in the use of improper aliment. I was called some time ago to a case of this kind, and found that the mother was in the habit of giving the child wine, punch, and bottled porter. On asking her why she did so, she said it was to keep off the fits, for if the child did not get such things when placed before it, it became irritated, and a fit was generally the consequence. How easy would it have been to keep such things out of sight altogether? Very often after a paroxysm the child will remain many hours apparently in a state of great distress, starting, screaming, and clenching the hands, or twisting the thumbs into the palm, refusing to suck, or doing so ravenously, and moving the head as if in pain. Under such circumstances I have found nothing so soon or so effectually give relief as a small blister applied to the nape of the neck, a purgative of calomel, followed, perhaps, by an injection, and immersion to the hips in

warm water. Sometimes I have thought it necessary to premise the application of one or two leeches to the head.

About twenty years ago, Allan Burns, who foresaw that the occasional enlargement of the thymus gland might be a cause of serious disease, proposed to dissect it out. This would be certainly a most decisive operation in the way of cure, for after its performance the infant would not be likely to be troubled with this or any other complaint. I may observe here that this disease has been noticed by some authors, though it has not received the attention it deserves. Kopp, in the year 1830, described it under the name of *asthma thymicum*, and were it not likely to extend the limits of this paper unnecessarily, I would cite some of his cases to show that it is the same disease. In one of them he observes that the mother of the child was of a strumous habit. It has been already observed that this disease is most frequently met with in scrofulous children, and in the children of scrofulous parents, although perhaps not exhibiting symptoms of that disease. There appears in some instances to be a family predisposition to this affection, so that several of the children take it in succession. It is scarcely necessary to observe that all diseases affecting the function of respiration are likely to lead to this; the same may be said of the irritation of dentition, during which the condition of the child should be closely watched. Enlargement of the mesenteric glands is by some supposed to be a predisposing cause,\* but I believe we only know that the two affections are very often found co-existing; and I may remark here that it is much oftener seen in boys than in girls, in, at least, the proportion of seven or eight to one. The disease is not entirely confined to the period of infancy, for in Sir A. Cooper's work† a case is given in which

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\* Mr. Burns seems to take quite an opposite view of the relation between the disease in the mesenteric glands and the enlargement of the thymus, which latter he appears to regard as the cause of the former. "By pressing on the subclavian vein it obstructs the passage of the chyle, and may thus excite disease in the mesenteric glands."—*Principles of Midwifery*, p. 728, seventh edition.

† *Jam. cit.* p. 41.

the patient was nineteen years of age. It has also been observed by Meckel and various modern authors. Sandifort, in his Pathology, describes an enlargement of the thyroid gland in very old persons, but does not state what the symptoms were during life.

Lieutaud\* mentions the case of a man of 35 years of age, who had long suffered from pain in the chest, cough, violent headach, and want of sleep; the lungs and thymus were found scirrhus; and it is mentioned that "the heart was empty, and remarkably contracted on itself."

A second case,† recorded by the same author, occurred in a young man of twenty years of age, who after inflammation within the chest, remained affected with dyspnœa, and difficulty of lying on the left side; the body became œdematous; cough very troublesome, and the respiration so much impeded as to threaten suffocation; empyema occurred, and the patient died. On examination the thymus was found of enormous volume and scirrhus, and the lungs were equally diseased.

In the close of the year 1834 I attended a *post mortem* examination with Dr. Harty, the subject of which had died of an affection almost precisely similar to that last detailed. He was a young man of 28 years of age; the tumour occupied the situation of the thymus, and was of immense size.

Since Kopp's treatise on the Asthma Thymicum, some cases have been published by Hirsch of Königsberg and others, all agreeing in the general characters already described. There is also a paper by Mr. Hood of Kilmarnock in the third volume of the Edinburgh Journal of Medical Science, p. 39, (this latter paper preceded Kopp's, having been written in 1826,) detailing some highly interesting cases of this affection, with very judicious remarks thereon.

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\* Hist. Anat. Med. t. ii. p. 11. Obs. 118.

† Op. cit. p. 118. Obs. 851.



ART. XIX.—*Notes on Corroding Ulcer of the Uterus.* By FLEETWOOD CHURCHILL, M. D., Licentiate of the King and Queen's College of Physicians in Ireland; Physician to the Western Lying-in Hospital, and to the Wellesley Female Institution; Lecturer in Midwifery, &c. at the Richmond Hospital School of Medicine.

[Read at a Meeting of the Surgical Society, Feb. 6, 1836.]

THERE are two diseases (cancer and corroding ulcer of the uterus) widely differing in their pathological conditions, but so much alike in their course and termination, that they have not only been confounded by superficial observers, but even those conversant with them have by no means drawn an accurate line of distinction. It is the object of this present essay to investigate this point, and to see whether we may not arrive at a correct diagnosis. The name of Corroding Ulcer of the Os Uteri, was first applied to this form of malignant ulceration by Doctor John Clarke, of London, and we are indebted to him and to his brother, Sir C. M. Clarke, Bart., for the best description we possess of it. We shall find, however, that there are some points which seem to have been passed over too lightly by these authors, and others which are scarcely consistent with more extended observation. The disease in question (corroding ulcer of the uterus) attacks females of the lymphatic temperament especially, and generally about the period of the cessation of the menses or soon after. Sir C. M. Clarke says, that he “ does not recollect having met with an instance of the disease before the age of forty;” I have, however, seen it at a much earlier period. It is frequently preceded by occasional pain or uneasiness in the pelvis, a sensation of heat internally, and by whites; but in other cases there are no precursory symptoms, and the attention of the patient and her medical attendant is first directed to these organs by a profuse hæmorrhage, which is often mistaken for an irregular recurrence of the

menses. If we make an examination at this period, we discover ulceration of the cervix uteri to a greater or less extent, with a rough granular surface, which may be insensible to the touch—slightly tender—or very irritable and painful.\* The situation and direction of the ulceration will vary in different subjects. *The remaining portion of the uterus is scarcely at all enlarged, and the contents of the pelvis are free and moveable.*

The hæmorrhage may cease for some time, but as the ulceration spreads, it will return at intervals through the whole course of the disease, less frequently, however, and in smaller quantity towards the conclusion. It has appeared in some cases to relieve the pain for a short time, and to suspend in a slight degree the progress of the complaint.

During the intervals of the shedding, a profuse discharge takes place from the vagina; but of a totally different character from the whites which precede the attack. It is thin and ichorous, and of a very offensive odour; its colour varies from a light straw colour to a dark brown; occasionally, but rarely, it resembles purulent matter.

Soon after the disease has developed itself, we find the patient complaining of weakness, weight and pain in the back; the latter sometimes extending to the loins, or round the lower part of the abdomen. The character of the pain is by no means uniform; sometimes it is described as lancinating, resembling a knife running into the back; at others, burning like a

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\* Sir C. M. Clarke observes, "When a finger introduced into the vagina, is made to pass over the ulceration, the patient does not complain of pain; she does not suddenly shrink from pressure as when carcinomatous ulceration is present, but if asked what sensation she experiences, she will commonly reply, that she has a sense of soreness."—Clarke on Diseases of Females, vol. ii. p. 195. That this is true of many cases there is no question, but that there are exceptions so marked as to negative the use of this sign as a guide to diagnosis, is proved by cases which have occurred to myself; and several authors have shewn satisfactorily, that we may have true cancerous ulceration without pain or tenderness on examination per vaginam.

hot iron. In a few cases that I have seen, no pain whatever was experienced from the commencement. The great weakness of the back, however, was present in all. Of course, so grave an attack cannot occur without severely affecting the constitution. The patient becomes emaciated ; the appetite diminishes ; there is occasional sickness of stomach ; the bowels are irregular ; the pulse is quick and small ; the skin becomes dry and sallow, and a low fever sets in. From this time the disease advances with variable rapidity ; in some cases it makes rapid progress, in others, as Sir C. M. Clarke observes, it may continue for years without destruction of life.

If we examine *per vaginam* occasionally during the progress, we shall find the ulceration extending either circularly, or on the anterior or posterior surface of the uterus, and, at length, in the latter cases, penetrating the bladder or rectum. The discharge is augmented, the fever increases, and the patient loses all her flesh ; the features are sharpened and the eyes sunk ; the skin dry, or perhaps moist and flabby ; the appetite ceases ; dyspepsia is constantly present ; the bowels are constipated, and their evacuation causes severe pain. The distress of the patient is often increased by excoriation of the vulva caused by the acrid discharge.

Ultimately the patient either sinks from exhaustion, or is carried off by peritonitis, from the extension of the ulceration to that cavity, or by hæmorrhage. The latter termination is, however, very rare.

A *post mortem* examination reveals clearly the nature and extent of the disease. The uterus is found more or less destroyed by ulceration, which sometimes extends itself circularly so as to destroy the cervix and part of the body completely, leaving the remainder suspended by the ligaments, and unconnected with the vagina, except by the surrounding cellular tissue ; in other cases, it attacks the anterior or posterior wall of the uterus only, with the neighbouring portion of the vagina, and the bladder or rectum. If the bladder be perforated, the vagina will be found more or less coated with matter deposited

from the urine: if the communication be with the rectum, fecal matter will be found in the vagina: I have never seen a case in which the bladder and rectum were both perforated. It is important to remark, that there is no deposition of new morbid matter either in the uterus itself, or in the neighbouring parts.\* The portion of the uterus which remains undestroyed is slightly swollen and vascular. Although from the nature of the changes which have taken place, we do not perhaps discern indications of the presence of inflammation as the primary disease, we can scarcely avoid concluding such to have been the nature of the first attack, but what were its characteristic marks, or when it acquired its malignant character, it is difficult to say. Neither is it easy to explain why ulceration should attack that part of the uterus first, which possesses the lowest degree of organization, †or why the hæmorrhagies should be most frequent whilst the ulceration occupies the least vascular portion of the organ.‡

*Diagnosis.*—I have already spoken of the similarity of this disease to cancerous ulceration. Both commence about the same period—at the cessation of the menses; either may give rise to lacerating pain,—to a sensation of burning,—or to no pain at all;—to hæmorrhagies;—to offensive discharges;—to emaciation;—to fever;—and both generally terminate fatally. How then are

\* My own observations thus fully confirm Sir C. M. Clarke's remarks on this point. In vol. ii. p. 191, of his work, he says, "If the body of the patient be inspected after death, there will appear abundant evidences of the destructive process, but no hardness, no thickening, no deposit of new matter."

† See Bell's Anatomy, vol. iii.

‡ The comparative vascularity of different portions of the womb, may be displayed by making a vertical section either before menstruation, during menstruation, during gestation, or at the time of the cessation of the menses. At all these periods, very much fewer orifices of the divided vessels will be found in the cervix than in any part of the body: in aged females, indeed, it becomes nearly cartilaginous. In addition, it has been observed, (Boivin and Duges, &c.) that the menses are not secreted by the membrane lining the neck of the uterus.



we to distinguish them? Sir C. M. Clarke lays great stress upon the character of the pain as a means of diagnosis: "It appears (he says) that pain of an intense and acute kind is not a character of the corroding ulcer of the os uteri;" and he states this as differing remarkably from the lancinating pain of cancerous ulceration "which invariably attends that complaint." A reference to many cases of cancer uteri on record will show that the latter assumption is incorrect; and amongst the cases from which these notes have been taken, one had suffered no pain from the beginning of the attack; others complained of burning pain; and some of severe lancinating pain. We cannot therefore attach much value to this test; nor is the tenderness on examination more available. Nothing conclusive is to be gathered from the period at which the hæmorrhagies occur, or from their extent. The other symptoms are too much alike in both diseases to afford us any assistance. Speaking very generally, I am inclined to think that there is somewhat less amount of pain in corroding ulcer than in cancer uteri; that there is less febrile action; that the dyspepsia is less tormenting, and that the emaciation is not so excessive. But these are very slight differences in degree, and of very uncertain occurrence; they cannot therefore be depended upon. The true ground of diagnosis, and the marked distinction between these two formidable complaints, is found on an internal examination. In cancer uteri there is extensive deposition into the cellular membrane and glands between the vagina and rectum, and between the vagina and the bladder, as well as into the substance of the uterus itself, connecting them, so as to form one large mass, and *rendering the whole immovable*; the finger, on being introduced into the vagina, finds very little space, and no power of moving the parts with which it comes in contact. Whereas in corroding ulcer, no deposition having taken place, *the uterus can be moved by gentle pressure*, and part of the pelvic contents having been destroyed by ulceration, *there is more space than usual in the cavity*. In addition, the finger should be introduced into the

rectum, and a very careful examination made of the condition of the vagina and of the surrounding interspaces; as in a case I had recently an opportunity of seeing, through the kindness of my friend Surgeon Ferrall of St. Vincent's Hospital, there was extensive carcinomatous deposition around the vagina and neck of the bladder, but not implicating the uterus, which was of the natural size, and moveable. This case illustrates the value of the physical signs I have insisted upon, whilst it impresses upon us the necessity for careful investigation, and the difficulties which are occasionally met with. It is, moreover, a rare case, as the morbid deposition generally commences in the uterus. I may add, as an evidence of the difference between the two diseases obtained by inspection after death, the fact that in cancer uteri, scirrhus depositions are found in other organs, as the lungs, liver, &c., but none such in cases of corroding ulcer.

*Prognosis.*—So long as this disease was confounded with cancer uteri, all hope of curing it, and indeed I might perhaps say, all attempts were given up. Even Sir C. M. Clarke, in his admirable work, seems to expect little more than being able to delay its fatal termination, and this not entirely from the intractable nature of the attack, so much as from the advanced period at which it first comes under our care. Upon the extent of the ulceration, its effects upon the neighbouring viscera and upon the constitution, our prognosis must be founded. Under all circumstances it is a very dangerous disease, but I should hope that if discovered at an early period it may not be found quite incurable.

*Treatment.*—The remedies which should be employed will of course vary widely according to the stage of the disease. Should we be consulted before any breach of surface has taken place, (which is seldom the case,) Sir C. M. Clarke advises the loss of blood from the neighbouring parts by cupping or the application of leeches, to be repeated if necessary. Hip-baths may also be serviceable at an early period. But if ulceration have set in, are we then to consider the patient altogether be-

yond our reach? Should we not be justified in excising the cervix uteri, if the ulcer has not spread to the body? It appears to me that we should be right in affording the patient this additional chance, considering that the danger would hardly be increased by the operation. It however would be hopeless should the body of the uterus have become engaged. In such a case we have still a remedy which may possibly be successful: I allude to cauterization. Caustic injections may be employed, or the ulcer touched with solid caustic by means of the speculum. As yet I have had no opportunity of trying this mode of treatment in cases sufficiently recent to afford reasonable expectation of benefit. I have used vaginal injections of nitrate of silver in advanced cases with temporary relief; it assuaged the pain, and deprived the discharge of its foetid odour. Ten, twenty, or thirty grains may be exhibited twice a day, dissolved in two or three ounces of water.

If these remedies fail to arrest the progress of the disease, or if from peculiar circumstances they are inadmissible, we can only hope to palliate the more distressing symptoms. Sedatives, such as opium, hyosciamus, belladonna, &c. may be given to alleviate the pain. Astringent injections may be employed to check the hæmorrhage; and mucilaginous or aqueous ones to cleanse the vagina from the discharge, and to prevent excoriation. The utmost cleanliness should be observed, and the external parts should be washed two or three times a-day with tepid milk and water. The bowels should be kept free by saline purgatives or enemata. The dyspepsia will be somewhat relieved by aromatic mixtures, or a combination of rhubarb and blue pill.

The diet should be nutritious and bland, but stimulants, except in very moderate quantities, ought to be avoided, as likely to prove injurious, and to induce a recurrence of the hæmorrhage.

ART. XX.—*Cases of violent Delirium, occurring at an advanced Stage of Maculated or Typhous Fever, and treated successfully by Doses of Tartar Emetic, frequently repeated.* By ROBERT J. GRAVES, M. D.

THE following cases occurred since the publication of the last number of this Journal, and I hasten to publish them, for many reasons. In the first place they prove that tartar emetic, in considerable doses, may be administered with advantage at a period of fever in which it was usually thought to be inapplicable, and to an extent which even now I cannot but consider as remarkable. In my former communications upon the use of tartar emetic and opium, I had not pushed the former remedy with the boldness and decision I have since done, for my experience only gradually accustomed me to a method of proceeding contrary to preconceived opinions, and my views of the powers of the remedy only gradually enlarged as I became more confident of its safety. It is but right to add, and I do it with gratitude, that I received much assistance and encouragement from the views of Dr. Marryatt of Bristol, published in 1788, but of which I and the profession in Ireland, and I may add in England, were generally ignorant until they were noticed in the last April Number of the British and Foreign Medical Review. This notice of a work, of which I had never before heard, and the testimony it contained that tartar emetic may be exhibited in considerable doses, and with advantage, at advanced stages of malignant fever, led me to attach more importance to this remedy alone, and uncombined with opium, and determined me to adopt a bolder line of practice in future, a determination which the event fully justified.

Some there are who will take occasion to remark that I can have no claim to originality on this occasion. But all who have watched my practice in the hospital, nay, all who have taken the trouble of reading my lectures and successive publications



on this subject, will at once acknowledge that I proceeded on this path of investigation with no other guide but an analogy derived from an observation of the effects of tartar emetic and opium in delirium tremens, a disease undescribed in the time of Marryatt. Every one the least conversant with the treatment of fever in private and in hospital practice in Dublin, London, and Edinburgh, will allow that no one during the present century ever taught or practised the exhibition of tartar emetic at the stage of typhous fever in which I have recommended it. Not a single hint at such a treatment is given in any of the numerous contributions on the treatment of typhus, which form the valuable work edited by Dr. Barker and Dr. Cheyne. Where is there even one allusion to this practice in Armstrong, Smith, Tweedie? And what is said of it in Good, Thomas, Mackintosh, or in the Cyclopædia of the Practice of Medicine? Where is it mentioned or inculcated in the Edinburgh Medical and Surgical Journal, or in Johnson's Medico-Chirurgical Review? No where; although the treatment of fever is often the subject of anxious discussion.

So far suffices with regard to the novelty of the matter, for it is useless to argue with persons so stupid as to confound the practice I recommend with the well known and popular use of tartar emetic as an emetic or a diaphoretic in the commencement of febrile diseases generally. That I did not come upon this method sooner, I regret infinitely, for since its adoption, my practice in hospital and in private has been much more fortunate than formerly. Nay, shortly before Mr. Cookson's illness, I lost several of my friends, relatives and patients, who would in all probability have recovered if so treated; and among the rest a gentleman, the very week before the first trial I made of the practice in Mr. Cookson's case. I mention this fact as the strongest and most convincing proof that I had never even thought of this method until Mr. Cookson's case occurred, for had I done so I would have surely been inexcusable in allowing

my patients to perish without even trying its effects. But it is time to proceed to the cases themselves.

The first case occurred very lately in the Meath Hospital, where its progress was anxiously watched by many students and several practitioners, all of whom concurred in the opinion that the patient must have died had he been treated according to the plan usually followed under similar circumstances. This patient was attended under my directions by Mr. Harnett, who took the following notes of its progress, and visited the patient with unremitting attention both by day and by night.

Joseph Taylor, æt. twenty-one, a strong young man, of temperate habits, admitted into hospital on the 7th May, 1836. Ill seven days; sickness commenced with rigors, headach, pains in loins, &c. On admission he complained of head-ache, tinnitus aurium; face was flushed; eyes slightly suffused; was constantly frowning; skin hot and dry, slightly maculated; abdomen full and soft; bowels confined.

Habeat Haustum Rhei.

9th. Slept pretty well; raved little; ringing in ears continues; headach increased; eruption of maculæ much more copious; slight cough; some bronchitic râles over both lungs; abdomen in every respect natural; bowels regular; pulse 100, distinctly dicrotous and sharp; tongue brown, dry, rough and furred; had slight epistaxis three days ago.

℞ Pil. Hydrarg. gr. iii. Pulv. Ipecacuanhæ gr. ss. ʒ Ft. pilula 4tis horis sumenda, applicentur Hirudines ii. naribus et repetatur applicatio hirudinum vesperi si opus.

Tenth day of fever. Slept tolerably well; bled copiously from nares; pain in head diminished; countenance still flushed and hot; temperature of rest of body lower than natural; feet very cold; pulse 112, dicrotous and wiry; tongue parched and furred, dark brown, great difficulty in protruding it.

Stupes to feet, blisters to præcordial region; blisters to calves of legs in the course of the day.

R Mist. Camphoræ ʒi, Liquoris Hoffmanni ʒi    ℥ Ft. Haustus  
4tis horis sumendus.

Eleventh day. Became very violent yesterday evening; attempted to get out of bed frequently, but when spoken to by the nurse, he remained quiet for a short time; was constantly raving, and gnashing his teeth during the night; had no sleep; a short time before visit this morning had a fit of an epileptic character, which lasted about ten minutes, in which he worked violently, and foamed at the mouth; at the hour of visit, nine in the morning, the countenance was flushed, anxious, and expressive of great ferocity; eyes wild and suffused; pupils natural; complains of dimness of vision; eye-brows contracted; breathing hurried; is constantly tossing himself from one side of the bed to the other, and tearing the dressings off the blistered surface; skin hot and dry; abdomen soft; no tympanitis; bowels loose; tongue parched and furred; he is incessantly protruding and biting it, and gnashing his teeth; pulse dicrotous, very quick, and somewhat hard, but small.

R Antimonii Tart. gr. vi. Aquæ Fontis ʒx. Mucilaginis Syrupi Papav. albi āā ʒi.    ℥ Ft. Mistura, sumat. ʒss. omni semihorâ.

Three o'clock, P. M. Has taken half the mixture, was nauseated by the second dose, but not since; he still continues very violent; fancies he has a bone in his mouth which he is constantly biting; is in a copious perspiration since he commenced taking the medicine.

Mr. Harnet ordered ʒi. of the mixture every half hour.

Six o'clock, A. M. Appears a little calmer; has taken the whole of the medicine, no nausea produced; has bitten his tongue and lip severely; perspiration continues; has passed a large quantity of urine in bed; pulse soft and full.

R Antimonii Tart. gr. iii. Aquæ Fontis ʒvss. Syrupi Simplicis ʒss.    ℥ Ft. Mistura cujus sumat. ʒss. omni semihorâ.

Eleven o'clock, P. M. Has taken all his medicine without

being nauseated ; countenance less flushed ; is constantly raving ; pulse 100, full and soft.

℞ Antimonii Tart. gr. iv. Mist. camphoræ ℥viii. Tinct. opii ℥i.  
℥ Ft. mistura cujus capiat ℥ss omni semihorâ.

12th. Continued raving during night ; had no sleep ; appears much quieter this morning ; face less flushed ; eyes still wild and staring, but very slightly suffused ; brows contracted ; pupils natural ; speaks rationally ; pulse 80 and regular, has lost the dirotous thrill which it had yesterday ; bowels confined.

Habeat enema emolliens, rept. mistura ; to have one pint of porter and chicken broth.

Three o'clock, P. M. Having taken the whole of the mixture, containing tartar emetic and opium, the simple tart. emetic mixture was again prescribed ; after taking two doses of which he fell into a tranquil sleep, in which he is at present.

Eight o'clock, P. M. Has slept continually all day, awakes occasionally, but falls into a deep sleep very soon again.

Omittatur tinct. opii.

13th. Slept soundly during night ; appears calm and collected ; conversation quite rational ; maculæ have disappeared ; pulse 84, soft and regular ; omit medicine ; a glass of porter ; light nourishment.

He has taken more than twenty grains of tartar emetic within thirty hours, and has been nauseated but *once*.

There are some circumstances in this case which require to be considered more at length. In the first place it is well to bear in mind that the patient was affected with genuine maculated fever, the true typhous, in the form many years present in great Britain and in Paris ; for in the latter city this peculiar eruption, somewhat resembling measles in the crescentic shape of the blotches, is considered quite pathognomic of typhus. This is important, particularly with reference to the use of tartar emetic in such large quantities ; again it is worthy of remark, that



symptoms of collapse, so alarming as to excite considerable apprehensions, and calling for the immediate application of blisters and the use of stimulants, occurred on the 10th day of the fever. It was immediately after this collapse that the violent cerebral excitement commenced, and certainly this previous collapse left an impression on my mind that no directly evacuating remedies could be borne; that they would at least be attended by great danger of speedy reproducing a fatal degree of debility; for this reason I did not repeat the application of leeches. The delirium in this patient was extremely violent, requiring the use of the strait waistcoat, and the constant superintendence of the nurse; the contortions of face, and the ferocity of his countenance, the constant biting of his tongue and lips, presented a frightful picture of excitement, which evidently could not be controlled except by the prompt and energetic use of powerful remedies. As the blistered surface on his chest seemed to add much to the state of excitement, for he was constantly tearing it, I did not think of applying blisters to the head, being persuaded that they might aggravate the evil, since in many they seem to act so as to produce a sort of *delirium traumaticum*. His pulse being frequent and sharp, together with the evident determination to the brain, seemed to indicate the exhibition of tartar emetic, nor was there any thing in the state of the intestinal canal to forbid its being given in frequently repeated doses. The result more than realized our expectations, for during its use the delirium gradually abated, and the pulse, becoming much less frequent, changed its character from a short and small, to a full soft stroke. This prepared the way for the safe trial of opium, which was not commenced until he had taken twelve grains of the tartar emetic. The opium was afterwards laid aside, and the tartar emetic alone completed the cure; but it may be doubted whether alone it would not have induced sleep.

I have made these remarks for the purpose of rectifying an erroneous impression, which I fear has gone abroad concern-

ing the use of tartar emetic and opium in the delirium of fever, and to prevent, as far as I can, the exhibition of opium, except when certain precautions have been taken by the practitioner to remove or diminish cerebral congestion, by means of proper evacuations or tartar emetic. No man can justly be held responsible for the abuse by others of remedies he recommends; but since the publication of my paper, in the last number of the *Dublin Journal of Medicine*, I have had lamentable proofs that I have been misunderstood; and lately was called to see a gentleman in the vicinity of Dublin, who the practitioner in attendance said, had been treated according to my method, whereas the patient was killed, according to his own, by opium injudiciously given during delirium with evident cerebral congestion.

It has been asserted, that after all, this case was not so dangerous, nor its recovery very remarkable. For a full refutation of so groundless an opinion, I refer with confidence to the written history of the case itself, a history which is far from laying before the reader an adequate picture of the deplorable state of the patient at the time that my treatment was about to be commenced, but which, nevertheless, is still faithful enough to convince every one at all acquainted with the symptoms and progress of fever, that the case was almost hopeless. What! is it possible that any one can be found, who has witnessed fifty cases of bad fever, and who is bold enough to say, that because the patient is young and was previously healthy, he could not be considered in imminent danger, when on the tenth day of spotted fever, a state of collapse requiring blisters and stimulants is followed on the eleventh day by delirium of the most violent description, rendering it necessary to tie the patient down in bed, and accompanied by a fit of convulsions of frightful violence, lasting more than ten minutes, and resembling an epileptic seizure?

This last symptom alone is more than enough to denote extreme danger. For the truth of this assertion, I appeal to my

own experience, to the experience of every practical man, and to the writings of every author who has written on fever. Hippocrates has four aphorisms, all testifying the danger of convulsions in fever; and in his book of prognostics, he says, that various causes may, in fever, produce convulsions in children under seven years of age, without great danger to life; but he adds with great emphasis, in adults, convulsions never take place unless “*τι των σημειων προσγενηται των ισχυροτατων τε και κακιστων.*” It is scarcely possible to describe the danger of any thing in stronger terms than these.

Those who assert that the possession of previous good health, or of a robust frame, renders violent fevers less dangerous, know little of the matter. The strongest and most powerful men I ever knew, were Dr. Clarke, jun. and Dr. Duigenan; they both died before the end of the third day!

I cannot pass over in silence the remark, that my cases only prove how much the powers of nature are able to bear, an observation involving the insinuation, that I was very culpable in giving such an example to others, and in countenancing the exhibition of strong medicines, such as tartar emetic in unwarrantably large doses. Now with all due deference, I may be permitted to observe, that in acute diseases threatening immediate danger to life, we gain little by waiting for Nature's assistance. Powerful remedies must be employed; but mark, if they are employed judiciously, their powers are only exerted in controlling the disease; this happened in all the cases I have related, none of the patients were injured in any way; in truth, the physician who orders one-fourth or one-half grain of tartar emetic to be given repeatedly until the disease yields, and who diminishes the frequency of the dose and the quantity of the medicine, in proportion to the diminution of the symptoms, to curb which was his object, that physician cannot be justly accused of giving heroically large doses of the medicine in question. To give it in smaller and less frequently repeated doses than are found sufficient to make an impression on the symptoms, would be

mere trifling. The doses of medicines must be pronounced to be large or small, not according to their weight or measure, but according to their effects, and when confessedly moderate doses are frequently given, and the effects of each carefully watched, surely caution herself can require no more. The same remark applies to my directions concerning opium.

CASE II.—The next case I have peculiar satisfaction in laying before the readers of this Journal, inasmuch as its progress and treatment were witnessed by the Surgeon-General, Mr. Crampton, who was struck by the benefit resulting from a mode of practice he had never before seen applied, and that, under circumstances at which the Surgeon-General considered as indicative of the greatest danger. Dr. Campbell too had an opportunity of witnessing for the first time this mode of treatment, and he since assured his class, that when I recommended it, he had scarcely a hope that our patient's life could be saved.

Mr. C., residing in Fitzwilliam-square, a surgeon, formerly an apprentice of the Surgeon-General, a young man of a powerfully athletic make, was attacked with the rigor of fever on Monday, 9th May, 1836. He was attended from the commencement by Dr. Campbell, and had a copious eruption of measles-like maculæ on the sixth day of the fever, when I first saw him. No unusual symptom occurred on the seventh day, and the headach, of which he complained much at the commencement, had disappeared in consequence of the application of a few leeches. On the morning of the eighth day we observed that every now and then he respired irregularly, as if repeatedly and gently sighing, a variety of respiration often indicating a disturbance of the nervous system, and which I have repeatedly observed as a precursor of cerebral excitement, and to which, consequently, I have been in the habit of drawing the attention of my clinical pupils, under the name of cerebral respiration. On the afternoon of the eighth day we had the benefit of the Surgeon-General's advice, who thought his case a very bad one indeed, for his pulse was almost 140 in a mi-



nute, and remarkably shabby, while he lay on his back thickly covered with maculæ; and we found that a rapid tumefaction of the abdomen had commenced within a few hours; a very bad symptom, inasmuch as the belly had been in the morning quite soft and fallen, and there was no cause to account for the sudden development of tympanitis, unless we supposed it, as it too frequently is, a harbinger of dissolution at no very distant period. His tongue was parched, and he complained of thirst. The usual treatment by means of chloride of soda was determined on, in consultation; after which the Surgeon-General expressed to the gentleman's friends, the fears he entertained for the result. Scarcely had the Surgeon-General gone out of the house, and just as Dr. Campbell and I were preparing to leave it, a sudden change took place in our patient, who jumped out of bed, and nearly succeeded in throwing himself out of a garret-window. We found him violently delirious; but this state did not last for more than a few minutes, when it subsided into a delirium of a comparatively gentler description. He refused, however, to return to bed, and we were obliged to allow him to walk about in his shirt, supported, for he was feeble, by two attendants; his eyes became at times very prominent and ferocious; now and then he threatened all those about him, in a loud and terrifying tone of voice, and he seemed every moment on the borders of frantic madness. Nothing could induce him to go to bed, or allow even a blanket to be thrown over his cold and naked extremities. Thus, seated on his chair, he presented a frightful picture, while his pulse became so quick, that it could scarcely be counted, and was, at the same time, exceedingly weak. What was to be done? The state of his circulation did not admit our endeavouring to control the cerebral excitement by arteriotomy or even leeches, and the last remark the Surgeon-General made, was, that a very few leeches would kill him; blisters would be too slow in their action, and might even aggravate the disease; cold effusion seemed inadmissible. In short, it seemed that our patient

was beyond the reach of all our resources ; as to tartar emetic, I felt at first unwilling to order it on my own responsibility, in a case apparently so desperate, and after Mr. Crampton had left the house ; in fact neither Dr. Campbell nor I thought it probable that our patient would survive twelve hours ; yet as I saw no possible means of saving him but the tartar emetic treatment, and determined at all risks to make a strenuous effort, I did not think myself justified in any longer hesitating about the matter, and ordered a mixture containing one ounce of syrup of white poppies, one of mucilage, and six of water, with eight grains of tartar emetic. Of this solution he was to get half an ounce every half hour, until a manifest impression on the cerebral excitement was produced.

The medicine was administered by Mr. Ferguson of Kildare-street, so well known as a skilful and excellent apothecary, and who told me afterwards that he was quite surprized at the treatment adopted, and was sure that neither it or any other could save Mr. C.'s life. The first six doses seemed to sicken him a little, but he did not vomit until after the seventh dose ; the eighth also produced very copious vomiting of mucous and bilious fluid. After the second vomiting he was prevailed on to go to bed, and was evidently more tranquil, but from having remained up uncovered for so many hours, much trouble was necessary before warm applications succeeded in restoring the natural temperature of his limbs and skin generally.

At 10 P. M. we saw him again, and finding that the medicine had produced so powerful an effect, we ordered it to be repeated only every second hour.

May 18th.—Ninth day of fever ; 8 A. M. Has taken five doses since last visit ; stomach quiet since the eighth dose. He slept several hours quietly in the beginning of the night, (he had not slept for several nights before,) but seems more excited now ; he threatens some of his attendants, and appears likely to be unruly. It was therefore judged right to repeat the medicine oftener, i. e. every hour and a half.

1 p. m. Has taken eight grains of tartar emetic since six o'clock yesterday evening. A solution of the same strength in plain water was now directed to be given in the dose of half an ounce every fourth hour. He slept a good deal during the day, and the medicine operated on the bowels, bringing down very large fluid stools, consisting of a great quantity of healthy yellow fecal matter. This effect is often produced by the tartar emetic in the advanced stages of fever, and is always a good sign. Although he was evidently more tranquil than before, it was thought advisable still to keep two strong steady men constantly in the room, ready to assist the nurse in case of emergency. He still raved occasionally, and would not allow certain persons, me among the rest, to approach him, having conceived a strong aversion for us.

At 7 p. m. we found that the fever was again rising, and that the cerebral excitement was on the increase; we therefore again had recourse to half-hour doses, until the excitement yielded; after which it was given only every second hour.

May 19th.—Tenth day of fever; 10 a. m. He took six doses during the night. He got out of bed, and eluded the vigilance of his attendants at a very early hour in the morning, but walked peaceably about the house, and when asked, returned quietly to bed. He slept well afterwards. As so much had been gained, we thought it unnecessary to persevere in the use of the tartar emetic; it was discontinued. He took in all twelve grains; it diminished the frequency of the pulse notably; and what was very striking during the forty-eight hours we employed it, the pulse not only became slower, but much softer and much fuller; the skin became softer and moist; the belly was fallen, and soft; and the maculae much diminished. His fever, notwithstanding, still continued; he spoke incoherently at times, but never again got out of bed.

On the fourteenth day an evident abatement of general fever commenced; the pulse fell, and the respiration, which, when he was at the worst, had been about fifty in a minute, fell to twenty-

five. This improvement continued progressive, and on the seventeenth day precisely all fever left him; his pulse being then 60.

It is only necessary to add, that it was found necessary to give a mild aperient every second day, until convalescence commenced. After the use of the tartar emetic had cured the cerebral excitement, he slept almost continually until the termination of the fever.

CASE III.—Mr. M., a gentleman of sedentary habits, full and corpulent, 40 years of age, was lately attacked with violent symptoms of fever. He was very actively and judiciously treated by Dr. Ireland from the commencement. The measles, like eruption, appeared about the fifth day. He had been copiously bled from the arm twice, and leeches were repeatedly applied to the forehead for the purpose of relieving pain in the head. He was likewise very freely purged. About the time the eruption appeared, his restlessness and debility increased, and he scarcely slept at night. In the course of a few days his state had become very alarming, and I saw him, in consultation with Dr. Ireland, on the ninth day of his fever.

We found that he had raved constantly during the preceding night, and was bathed in an exhausting perspiration, while the pulse rose to about 130; his respiration was very frequent, and his face wore an evident expression of excitement, not of a violent, but of a very restless character. His tongue was parched, and his body thickly covered with maculæ. In short, notwithstanding the active measures of depletion, general and local, applied in the beginning of the disease, it was evident that cerebral excitement had come on, and that too at a period of fever when debility forms a formidable obstacle to the further use of direct evacuants. His exceedingly gross habit of body, and prominent abdomen, were concomitants of the worst omen, for it is well known that very fat people seldom recover from typhus of a bad character. In this state of things tartar emetic was



given to about the extent of three grains in the twenty-four hours ; it was continued forty-eight hours, or until a satisfactory calm of the nervous system had been produced. Besides diminishing the delirium and inducing sleep, the remedy here brought away numerous and copious bilious stools, and diminished notably the frequency of the pulse and of the respiration. It is worthy of remark also, that in proportion as he came under the influence of the tartar emetic, the useless and profuse perspiration began to abate, and after some hours ceased.

This gentleman's life was evidently saved by the treatment, for though his fever continued many days after, yet he never was in danger except from hiccup, which came on about the thirteenth day, and tormented him day and night. Claret, iced, seemed to have more power in relieving this symptom than any other expedient resorted to. His fever ceased entirely about the nineteenth day.

Doctor Ireland, who has had the most extensive experience in fever, testified the pleasure he felt at witnessing the good effects of a mode of cure to him quite new, and applied in a case he thought almost desperate.

CASE IV.—The following occurred during the time these remarks were in the Press, and presents so striking and convincing an illustration of the efficacy of my treatment, that I have thought it right to communicate it to the profession. The progress of this case was witnessed by several practitioners, who all declared, and I myself concurred in this opinion, that nothing could save the patient's life. His recovery was, without exaggeration, a matter of astonishment to us all ; while at the same time it was so evidently the effect of the remedies employed, that many who had been wavering in their minds as to the utility of tartar emetic exhibited in the advanced stages of spotted fever, could no longer refuse their assent, and unhesitatingly declared their conviction that by no other plan of treatment could a favourable issue have been brought about. The patient was most diligently watched by Mr. Rooney, an

attentive pupil, who visited him many times during the day and night, and reported to me the effect of the medicines.

Edward Meylagh, a stout, muscular peasant, aged 25, was attacked about the 23rd of May, 1836, with the usual symptoms of commencing typhus. He was admitted into the Meath Hospital on the 1st of June, after the usual hour of visiting the wards. It was ascertained that he had been repeatedly and violently purged since the commencement of his illness by pills and aperient mixtures. I saw him at 9 A. M. on the 2nd of June: he had passed a most restless night, muttering incessantly, and becoming at times so unmanageable, that it was necessary to put on the strait waistcoat. Now he is obstinately silent, will not answer questions, or put out his tongue when desired. His countenance is at once morose and haggard, and at times assumes a suspicious, ferocious aspect; eyes glazed, and slightly suffused; general surface of skin rather dry and hot, but his extremities are cold and livid; pulse 132, small and compressed; respirations 42, irregular; abdomen neither swollen nor tender; he passes urine and fæces in bed; his tongue is dry, and dark-brown in centre, moist and red towards the edges. The whole surface of his body is covered with maculæ. Immediate attention was paid to restore the warmth of the extremities, and I directed him to get every hour half an ounce of mixture, consisting of eight ounces of water, four grains of tartar emetic, and two scruples of laudanum.

1 P. M. At mid-day he began to gnash his teeth, knit his brows, screw his lips, and spit at every person that approached his bed. The expression of the face was rendered worse by the rapid motions of the eyeballs and a frequent squinting. In fact he became so ungovernable that the restraint of a strait-waistcoat was no longer sufficient, and his legs and thighs were tied down to the bed. His carotids pulsated violently, and he alternately laughed and screamed aloud. Pulse 132, still small and wiry. As no perceptible action had been produced by the medicine, it was ordered in double doses.

6 P. M. Countenance much improved; less morose; he continues, however, to speak unconnectedly, but jocularly; is in a copious warm perspiration; pulse 120, soft and compressible; respirations 36, regular. To continue the double doses.

9 P. M. Has been in a composed tranquil sleep since half past six o'clock; perspiration continues; has passed a large quantity of urine; extremities are now naturally warm and moist: the pulsation of the carotids has subsided. He has taken four grains and a half of tartar emetic since morning, and twenty-three drops of laudanum. The medicine was now directed not to be given at regular intervals as before, but according as the symptoms seemed to require it; it had neither nauseated or purged him.

3rd June. He has slept tolerably during the night, and got three doses of the bottle. About five in the morning he became somewhat restless, when a double dose was immediately administered, after which he slept composedly until nine o'clock, the hour of visit. His tongue is red, dry, and parched, fissured towards the tip; his thirst is increased, and he drinks very freely of cold water; skin moist and warm; pulse 96, dicrotous; respirations 30, regular; he seems inclined to sleep. His ideas are somewhat confused, although he answers rationally; bowels confined; abdomen a little tumid and slightly tympanitic. Has taken two grains and a half of tartar emetic and ten drops of laudanum since yesterday evening. I now thought it unnecessary to persevere any longer in the use of this mixture, and directed my attention to the state of the bowels, which soon yielded to emollient lavements. The alvine evacuations so procured were very copious, and were followed by immediate subsidence of the belly, and evident amelioration of the symptoms. He continued to sleep quietly during the day; at six in the evening his pulse were 90, soft and natural; respirations 30; skin warm and perspiring; maculae have nearly disappeared.

7th June. Much natural sleep; pulse 65, soft, of good

strength, and without any of the dirotous character; intellectual faculties rapidly improving; now passes urine and faeces voluntarily; abdomen soft and fallen; tongue cleaning, and nearly moist. In fact, convalescence has almost commenced.

CASE V.—A gentleman of about 20 years of age, was attacked with measles of an irregular form. The eruption did not come out favourably; and notwithstanding he was treated from the beginning by Dr. O'Brien, so well known as an excellent writer on the subject of fever, his state became daily worse, and Dr. O'Brien pronounced his case hopeless when he sent for me on the sixth day.

It must be borne in mind that Dr. O'Brien has been Physician to the Cork-street Fever Hospital for thirty years. The combination of symptoms which caused him to form this unfavourable opinion, were an exceedingly rapid, shabby pulse, violent delirium, total sleeplessness, and an evident sinking of the vital powers, manifested by coldness of the skin, &c. &c. As he was young, and the disease recent, we ventured to draw a little blood from the arm, but he fainted before many ounces could be obtained; we leeches his forehead without any perceptible effect. On the morrow he was worse; I then proposed the exhibition of small doses of tartar emetic, in frequently repeated doses. He took two grains in the course of ten hours; was nauseated or vomited by almost every dose; became more tranquil; finally fell asleep, and in twenty-four hours was out of danger.

Dr. O'Brien expressed to me in the strongest terms his gratification and surprize at the striking and beneficial application of a medicine he had never before seen given in like circumstances.

Another case of spotted fever, to which I was called by Mr. McNulty of Britain-street, afforded an equally favourable result within this last week; as did also a very dangerous case of the same disease, which I treated along with Mr. Mulock.



I have thus fully laid before the public the result of my experience on this subject, convinced that I have not deviated in the slightest degree from the strict and naked truth in any of the preceding details. I have not in a single instance related what was not witnessed by other medical men of judgment, well known to the profession. If my treatment be not useful, it has singularly deceived me in curing my patients. If it be not new, it is strange that so many others in Dublin, that the whole body of practitioners should have been fully as ignorant of it as I was myself.

To conclude, I must observe that I by no means wish to recommend tartar emetic as a specific in fever. I only use it in the complication above described. In fever the physician must use an almost endless variety of treatment according to the circumstances of the individual case before him; and he only will be successful who watches narrowly the progress of the cases intrusted to his care, and applies the appropriate remedies at the proper moment. Bleeding, leeches, purgatives, mercurials, antimonials, absorbents, acids, stimulants, tonics, blisters, chloride of soda, may each be necessary in the treatment of different cases at different stages of their progress, or of different types. To conclude, the treatment of fever will be always difficult—always complex, but it ought to be successful.

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ART. XXI.—*A Case of Serous Discharge from the Scalp and Hair.* By ISAAC BRACKEN, L. R. C. S. I.

“ TO THE EDITOR OF THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

“ Ballymahon, March 7th, 1836.

“ SIR,

“ Permit me to transmit to you the following case, in which the symptoms were so unique, and the changes so capricious, as to put professional credence to the test. As I believe

there is not on record a similar instance, it must make my best apology for soliciting its publication in the Dublin Journal.

“ I am, Sir,

“ Your obedient Servant,

“ ISAAC BRACKEN.”

ON the evening of the 9th June, 1834, I was requested to see Ellen Dalton, ætat. 17, of slender habit, residing at Drynan, in my immediate neighbourhood. I found the patient reclining in bed, with the head resting on the hand. The hair from that part of the scalp covering the frontal bone was moist, and formed into twenty or thirty pencils, (if I may so say,) at the extremity of each of which was a drop. The hair on the remainder of the head was perfectly dry. On the floor there seemed about ten ounces of fluid, which her friends said had just flowed from the head.

She stated that a few months previous she had got a severe wetting returning from a fair; afterwards felt a chill, succeeded by a profuse perspiration, to which at different times since she has been subject.

For the last four or five days she has had a teeming of fluid from the hair on the anterior part of the head, which generally lasts for ten or fifteen minutes. She is warned of its approach by a peculiar sensation. Her skin felt natural; pulse 80; tongue clean; had no thirst; bowels free, and urine of usual quantity. Catamenia stated to be regular.

On the morning of the 10th saw her again. The fluid had been received into a basin since my last visit, which it nearly filled. It was of a straw colour, and had no peculiar smell. The periods of discharge were most frequent from four to six o'clock, A. M. Patient in the same state as on my first visit. I to-day premised future treatment, with a brisk purge of calomel and rhubarb; requesting that I should be sent for on the accession of an attack.

11th. I this day witnessed, for the first time, the distilling of this fluid. Drops fell in very quick succession from thirty points or so, (as fast as eave-drops in a shower,) which lasted for eleven minutes, when they ceased. Discharge to-day equal to yesterday. Patient not weaker. Medicine had operated well. Ordered

Sulph. Quininæ, gr. vi. Pulv. Bac. Capsici, gr. i. Ext. Hum. Lupuli, gr. i. ut ft. pil. ii. mane meredieque sumend.

Patient continued in same state till the 20th, when I ordered the quinine to be increased to eight grains, three times daily, and to be washed down with a glass of water containing eight drops of dilute sulphuric acid. Fresh meat twice a-day, and ale at dinner. Tested the fluid for albumen to-day, with ferro-prussiate of potash, muriatic acid, corrosive sublimate, and heat, but elicited none. Fluid had a slight saline taste. The patient been kept out in the air, and with cheerful companions, for the last few days.

Up to the 3rd of July she has been better; fluid gradually decreasing to a pint; pulse now 70. To-day I found two large basins full of fluid; patient complains of weakness for the first time; pulse 80, and weak.

11th. To-day discharge has been but half a basin full; patient stronger.

Up to the 2nd of August, discharge daily lessening. On the 13th it had ceased, and she continued well till the 17th, still continuing her medicine, with an occasional purgative. On visiting her to-day I found the stomach in so irritable a state, that it would retain nothing. I directed that she should be kept for ten hours without food, and then have a little green tea and toast.

18th. Stomach relieved, but she still retches occasionally. Ordered infusion of columba, with carb. soda.

19th. Better.

20th. Stomach retains food. Medicine continued till the 24th, when all medicine was discontinued.

On the 2nd of September I was requested again to see her, as she had a return of the discharge. I was surprized to find that it now came from the posterior part of the head, but not in the same quantity. Pulse 80. Ordered quinine and sulphuric acid diluted, to be renewed. The discharge ceased entirely by the 8th. She has not since been subject to it.

There seemed no constitutional derangement throughout in this case.



## BIBLIOGRAPHIC NOTICES.

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### *On the Discoveries of Jörg relative to the Lungs of Children immediately after Birth.*

ANALYSIS AND OBSERVATIONS. BY DR. GRAVES.

THE interesting investigations of Doctor Jörg were first noticed in March, 1834, in the Dublin Medical Journal, and in September of the same year some account of them was published in the Gazette Medicale de Paris. Doctor Jörg's dissertation appeared in Latin in 1832; since which he has bestowed much attention on the same subject, and in 1835 published in German, the volume whose contents I am now about to notice. Finding confusion had arisen from want of some word to express that state of the lungs in infants, in which portions of these organs are found to have been not at all, or but imperfectly dilated by the air during the time they continued to breathe, he has, in the present work, (entitled *Die Fötuslunge in gebornen kinde*, &c.,) endeavoured to remedy this defect by the use of a new word *Atektasis*, derived from the Greek, and signifying *imperfect dilatation*.

In order to understand the chain of phenomena which precede and cause the first respiratory act, and to appreciate the nature of the agencies, which, by impairing the energetic action of those causes, give rise under particular circumstances to *Atektasis*, is the object of Dr. Jörg's first chapter; he there traces the different stages of foetal nutrition and respiration, and shows how the intensity and vigour of both begin to diminish, immediately before the time arrives for the expulsion of the child from the womb. The vascularity and vital energy of the placenta, are thus evidently on the wane, and this organ undergoing a sort of *marasmus*, carries on with decreasing powers the important functions of nutrition and foetal respiration; at the same time, the activity of the amnion declines, and consequently its aid in promoting this object (in whatever way

that aid acts) also diminishes. The process of delivery next begins, and uterine pains and contractions follow in their natural order; now it is highly probable, that those pains and contractions exercise a direct influence on the placental circulation, both maternal and foetal, and thus, powerfully tend to interrupt the placental functions, among the rest, that which aerates the blood of the foetus. Here we see a wise provision of nature; one mode of respiration is repeatedly interrupted previously to its being entirely suspended, so that the child labours at the moment of birth under in all the bodily feelings which are coupled with the necessity of breathing, and consequently at the instant where it is exposed to the air, it is impelled by all those feelings, concentrated and acting with the greatest energy, to make a full inspiration. Observe, however, that each preceding uterine contraction, by suspending or diminishing the placental circulation chiefly in the smaller vessels and the circumference of that organ, has prepared the way for the change which now takes place, by lessening the respiratory effects of the placenta on the blood of the foetus. That the uterine contractions accompanying the labour pains, exert a very important influence in thus compressing the placenta, is anatomically necessary. That these contractions operate through the circulation of the placenta on that of the foetus, is a *priori* more than probable; this probability however, is converted into a certainty, by the fact first observed at Berlin, but which Dr. Jörg has not noticed in connexion with this subject, that a notable acceleration of the foetal pulse takes place immediately before the commencement of each labour pain. Now, as the contraction of the uterus commences many seconds, sometimes even half a minute before the pain is felt, we have an explanation of the manner in which this acceleration of the foetal pulse preceding the pain is caused, for we can readily understand why the foetal heart begins to act with greater rapidity, when the pressure on the placenta produces a certain degree of embarrassment in its circulation, and a consequent difficulty in the transmission of blood from the foetus to that organ. This subject has not been yet considered in the light in which the preceding observations place it, and is, I think, well worthy of further examination.

From the preceding observations, Dr. Jörg concludes, that in estimating the physiological effects of labour and the accompanying pains, we must not restrict ourselves merely to the expulsion of the child, and the restoration of the uterus to a state compatible with the mother's safety, but we must consider the act of parturition as acting powerfully, by means of its duration, and the number and energy of the

accompanying uterine contractions, upon the system of the child, so as to prepare it for new efforts necessary for the discharge of the altered functions of respiration ; a parturition of the natural duration, gradually checks the placental circulation, and limits that of the foetal chiefly to its own system, while it engenders in the latter, a gradually increasing and finally an urgent want of some new mode of respiration. If the act of parturition be much shorter in duration than is natural, the child incurs the danger of being born in other respects healthy, but not at the moment endowed with the organic stimulus to expand its chest for the purpose of making the first inspiration. The more urgent this stimulus, the more decided and healthful its effects, the more the state of the child approaches to that of asphyxia, suddenly induced in the adult by want of air, as in submersion, the more powerful will be the exertion of the respiratory system of muscles, and the more perfect the dilatation of the lungs by the air at the first inspiration. Once the air, in consequence of this well-performed first inspiration, has penetrated to the air cell in every part of the lungs, the function of respiration proceeds without embarrassment.

Let us now study the effects of this new function on the circulation, in doing which I shall not follow Dr. Jörg, but shall communicate some considerations which I have been in the habit of bringing forward in my physiological lectures. In the first place we must take for granted the great power of the capillaries, and the important part they play in causing the motion of the blood, and co-operating in its progress. It is the capillaries which act in powerfully drawing the blood into limbs in which the main artery has been tied, and to their vital action is owing the final restoration of the circulation ; it is to the unnatural action of the capillaries in an irritated part, that is owing the great afflux of blood to that part. Let cold be applied to the hand sufficiently long to weaken and impair the vital force of its capillaries, and immediately, although the great arteries of the hand are as pervious as before, and although they present no obstacle whatsoever to the blood flowing from the heart, and impelled by that organ with its usual energy, immediately I say, the quantity of blood in the hand notably diminishes, the skin becomes paler and exsanguineous, and the fingers, to use the common phrase, *die* ; and all this in consequence of the vital energies of the capillaries being impaired by the cold. The capillaries of the lungs play an important part in the pulmonary circulation ; the passage of the blood through the pulmonary tissue, from the right side of the heart to the left, is rapid, and as it were unimpeded in the natural state, and during the continuance of healthy respiration ; but the moment the latter fails, the moment that



the capillary system of the lungs is impaired in vitality by the contact of blood not properly aerated, that moment do the capillaries begin to forward the circulation through the pulmonary tissue with less energy, that moment commences a gorged state of the lungs, in fact the state which, continuing, terminates by cutting off the passage from the right side of the heart through the lungs to the left, altogether. In the production of asphyxia, the capillaries of the pulmonary tissue are the chief agents, and to the restoration of their vital energy must all our curative effects be directed; here it is vain to endeavour to restore the powers of the heart alone. The *vis a tergo* derived from the right ventricle, will never suffice to drive the blood through the gorged lung; this can be only effected by acting on the capillaries themselves by artificial respiration, which, restoring to them their lost vital energy, immediately draws in, and expels the venous blood.

We are now prepared to understand the important, the paramount importance, which the first act of inspiration exerts on the circulation of the child just born; we are now enabled to comprehend the hitherto unexplained phenomenon, the sudden change in the channels through which so large a body of blood flows; the blood impelled by the combined agencies of the foetal heart, the foetal capillaries, and the placental capillaries, flowed in channels with a velocity and force proportioned to the intensity of these moving forces. What a change now suddenly takes place; the agency of the placental capillaries, at first gradually diminished, now ceases altogether; the circulation through the cord consequently is arrested, and at the very moment that the placental capillaries (which had so long and so powerfully acted in determining the flow of blood to and from that organ to the foetus) cease to exert any influence; an hitherto almost unemployed and still more powerful system of capillaries, that of the lungs, starts into action, in consequence of receiving a new impulse of vitality, a new power from the first inspiration. If we examine the consequences of these alterations, they can be easily traced to their causes, and we can satisfactorily account for the sudden change of vessels through which the blood now flows; we can readily explain why deserting the route of the *ductus venosus*, the *ductus arteriosus*, and the *foramen ovale*, it rushes past its wonted channels, propelled in a new course by the more powerful attraction of the pulmonary capillaries; in fact there is always a system of capillaries interposed between both extremities of the arterial and of the venous trees. The heart is placed in the centre, by its powers destined to maintain the balance of the circulation; at birth the system of pulmonary capillaries is suddenly substituted for that of the placental, and thus a



new disposition of *moving forces* being established, a new direction is given to the blood, which now necessarily flows through vessels hitherto but little used, although fully prepared for its reception—I mean the pulmonary arteries and veins. This much I have thought it right to add, by way of illustrating the physiology of this important epoch in the circulation. We are now prepared to follow Dr. Jörg with more satisfaction, and we can understand the injurious consequences of a too rapid expulsion of the fœtus, for the child then fails to make a full and perfect inspiration, and often breathes not at all for some time after it is born! Hence the channels in which the blood flows are not changed, or are changed but in part, for the change is exactly proportioned to the energy with which the pulmonary capillaries, starting as it were into new life, perform their functions. The two or three first inspirations are the most intense and energetic, for the child then exerts himself under the powerful stimulus of want of breath. When these inspirations have the effect of causing the air to pass into every part of the vesicular texture of the lungs, all is well, and the function is thenceforth performed with vigour; but this is not always the case, and then a portion, often a considerable portion, of the child's lungs remain in their fœtal condition, that is to say, of a brownish colour, and a non-vesicular and consistent liver-like texture; the portions of lung which thus escape the healthful and natural dilatation of their air cells on the first inspiration, are either gradually dilated by subsequent efforts, or else nature failing in the attempt to dilate them in the usual way, tries to get rid of these parts now acting like useless and foreign bodies, and sets up an inflammatory process, often ending in interstitial suppuration, or in vomicæ; not unfrequently the inflammation gives rise to a complete consolidation of the *atelectatic* parts, which may, when small, be confounded with tubercles, or with minute and insulated hepatizations.

It is obvious that every cause which much weakens the vital powers of the child before its actual birth, may occasion the occurrence of *atelectasis*. Thus may act long continued over violent pressure on the head, hemorrhage from the navel, &c.

Indeed all the causes commonly enumerated as producing asphyxia in newly born infants, may, when they are present only in a slight degree, occasion atelectasis. After very easy and rapid, and as they are termed, very lucky deliveries, the child is often observed to be large, of a healthy appearance and form, but nevertheless very weak and unexcitable, although without any of the symptoms of asphyxia; its extremities hang flaccid and powerless; the voice is weak and whimpering; the respiration proceeds as it were in a deficient superficial manner,

and the respiratory motions of the chest, particularly those of its anterior portions, were evidently limited in extent; the eyes remain dull and half open. When such infants are placed in a warm bath, and other stimulating remedies are applied in the usual manner, the debility seems somewhat diminished; the limbs are moved about a little; the eyes more opened; but still the respiration continues deficient and superficial, consisting of a short panting breathing like that of persons affected with the asthma, or with hydrothorax: children, on the contrary, which are born after a very difficult labour, generally exhibit a swollen state of the head, and though they too are often very weak, yet they can be easily distinguished from the former by several characteristic symptoms, such as a red or even bluish tinge of skin, bearing marks of violent compression, and often appearing bruised; such infants often come into the world asphyxiated, and always very weak and exanimated. In many cases indeed they appear already dead, and do not begin to move the lips and chest even feebly for a quarter of an hour or longer after birth; the breathing at first weak and suppressed gradually improves in some few, until it reaches a degree of development compatible with the support of life. Generally their debility is too great, and their respiratory motions continuing limited, they grow worse; their respiration wants the natural depth and regularity, and though it has become continued, is evidently imperfect. They do not utter any loud cries, and at most have a whimpering and weakly voice; their eyes are generally closed and are opened with difficulty, while their limbs seem paralyzed, or are moved at a later period with apparent difficulty: all these symptoms are the more untractable, on account of being occasioned by injurious impressions made on the brain, and which having been of a mechanical and stimulating nature, forbid the employment of exciting remedies. Frequently, indeed, great debility remains even after the consequences of over pressure on the brain have ceased; frequently, too, convulsions take place, depending not upon imperfect respiration, but on previously received cerebral lesions. Sick children of this sort exhibit but slight symptoms of revival when placed in a warm bath; their debility continues, and they speedily fall into a slumber, disturbed by slight convulsive motions; or they lie relaxed and quiet with open eyes. The superficial and short respiration can scarcely be perceived, and the voice remains weak and whimpering. If, on the other hand, premature delivery, excessive hæmorrhage, or any thing else which depresses the powers of life, is the cause of the child's weakness during the first few minutes that succeed its birth, then the symptoms observed coincide entirely with those described as occurring in infants born too speedily.

It may perhaps be possible to discern in what children a connate debility produces the mischief, if they exhibit other proofs of weakness, such as an imperfect development of the limbs and flesh, a deficiency of size and weight, or an evident state of anæmia.

Now although *atelektasis of the lungs* is produced by the operation of different causes in each of these classes, by a want of that stimulus of deficient aeration of the blood, which excites the action of the respiratory muscles in the first class; by a suppression of vital energy in consequence of some passing injury of the brain or spinal marrow on the second; and by a connate want of vital energy, usually the result of premature delivery, in the third class: although *atelektasis* may originate in causes so distinct, yet once produced, it occasions in all consequences very similar, for it is only in the few hours immediately succeeding the child's birth, that these classes can be clearly discriminated from each other; as the disease proceeds, the pulmonary affection becomes more and more pronounced, and necessarily engrosses all our attention, and the symptoms to which it gives rise are very nearly the same, no matter what may have been the original cause of the *atelektasis* itself. These symptoms supervene in the course of a few hours after birth, and generally in the following order; excepting obvious debility the infant may appear to a superficial observer in tolerably good health, especially as it makes efforts to suck; these efforts are in general, however, but partially successful; in some a grayish or livid tint may be observed around the mouth for a few seconds, when it fades away again to re-appear after an uncertain interval. In most of the infants a bluish red colour is observable from time to time spreading rapidly over the whole surface of the skin, especially that of the face, and resembling the tint produced by certain stages of asphyxia. The respiration is performed in a superficial manner; the voice scarcely audible, is plaintive; sucking imperfectly performed; sleep either unnaturally prolonged, or else disturbed and nearly altogether absent. In the latter case the eyes not unfrequently remain constantly open, and the body and limbs are scarcely moved. On the second or third day, seldom later, spasms set in, affecting either the muscles of the face or else spreading to other parts; these spasms often amount to fits of convulsions, in which the eye-balls are turned inwards with such force, that the cornea of each eye seems tied to its inner angle; generally the skin is cold and is covered with a clammy sweat; the pale colour of the skin at times changes rapidly to a livid hue, particularly round the mouth and nose, while the nostrils are dilated, as if by a strong effort. The livid colour around the mouth and nose arises



from a derangement of the circulation affecting chiefly the capillaries of these parts, and may be regarded as a pathognomic sign of pectoral disease in children. Sucking is performed very badly, is often impossible, and many children are soon deprived even of the power of deglutition. They very seldom cry, and when they do, the tone of voice is remarkable, being whimpering, hoarse, and even crowing, something like the voice of croupy children; at times a slight pectoral rhonchus may be heard, and they cough a few times in the course of the day. The mouth and eyes generally continue open, and the widened inexpressive pupils are turned almost always in the same direction; trismus, and a remarkable sweating about the head, are occasionally, but not usually, observed.

I have never remarked, says Dr. Jörg, that this group of symptoms proves speedily fatal on their first accession; on the contrary, a certain degree of remission usually takes place; the convulsions diminish in intensity, and gradually disappear; the skin becomes warm; the eyes and head assume a more natural aspect and position; the rhonchus either vanishes or greatly decreases, and the power of sucking is restored; still, however, a well marked degree of debility remains behind, which combined with the remains of the above symptoms, however diminished in intensity, is sufficient to put an attentive observer on his guard, and warn him of the magnitude of the danger.

When proper means, unremitting, and zealously applied, have succeeded in producing alleviation, the second paroxysm is much less violent than the first; the cramps and convulsions, the rhonchus, the dyspnoea, and the hoarseness of voice, return in less than twenty-four hours, but they are less violent and of shorter duration. The skin is not so cold, and the bluish tint which is, as it were, seen through it, is much less intense and more fugitive; the general debility decreases, and immediately after the subsidence of the second paroxysm, the children again take the breast. Should this improvement continue, the power of sucking increases; the child's cries become more natural; the limbs and body are moved with greater ease, and the mouth is closed during sleep, which is tranquil. The longer intervals between the fits and their comparative mildness, encourage our hope of recovery, which are more and more confirmed by the increasing strength of the infant, especially in sucking, and its more perfect respiration.

In children when this affection runs an unfavourable course, matters are very different; after the first paroxysm of convulsions, the debility and listlessness are greatly augmented, the voice remains husky, and a rhonchus in the chest continues, while something like coughing is occasionally heard. Doctor Jörg



says, that the debility in these children is too great, and the respiration is too imperfect to enable them to cough out, as it is called. During the remission, the infant lies with half-open eyes, and enjoys no true sleep, and slight convulsive twitches play about its mouth and upper extremities. In twelve or fourteen hours a new paroxysm comes on of longer duration than the former, and in which it is bereaved of all power of sucking or swallowing, while the skin becomes cold and pale. This paleness, however, often alternates, in the latter accessions, with a livid tinge of the skin over the whole body, while the accumulation of phlegm in the air passages threatens impending suffocation. The eyes are so turned out of their natural direction, that scarcely a segment of their cornea can be seen; the hands are clenched; the toes bent, and all the extremities drawn towards the trunk. The alvine evacuations are very confined, or cease altogether. The attendants are often inclined to think that the child has actually died in one of these fits of convulsions, either of apoplexy or suffocation, for it ceases to breathe for half a minute, or even much longer, and grows so livid and cold meanwhile as really to assume the appearance of being lifeless; after a time, nevertheless, the respiratory motions are again observable, and the pectoral rhonchus is heard louder than before, while every now and then the child draws a deep sigh-like breath. The respirations, indeed, succeed each other at long intervals at first, and are performed so unnaturally, and with such violent spasmodic efforts, that they resemble a snapping or catching at the air. It seems altogether impossible for the little sufferer to live or become better, so long are the pauses between the inspirations, so livid is the body, and so disturbed the features and eyes; the breathing notwithstanding becomes by degrees more continuous, the lividity of the skin diminishes; the heat returns; the eyes are less distorted; and in fine the symptoms all become mitigated; thus proclaiming the approach of another remission. This remission, however, is attended with a more alarming degree of debility and sinking than the former, and with a much less perfect subsidence of the convulsive motions, which indeed continue with more or less violence, while the child unable to suck or swallow, is evidently oppressed with dyspnœa, accompanied by a peculiar attempt at coughing, and a continued rhonchus. The collapse and emaciation are so great, that combined with the extreme pallor, and a glazed eye, they impart to the poor infant's countenance the expression of old age.

It seems now impossible for the child to survive another paroxysm; and yet it often does, and it may even survive more than one, nay, several.

After a shorter remission than before, the third fit commences, with the same symptoms, except that the extreme debility of the child renders the convulsive motions less energetic. Instead of the clonic spasms, tonic are now frequently observed, and the child at the same time that it becomes generally livid, stretches itself out bent backwards in a fit of general trismus; the limbs stiff; the fingers drawn inwards; the mouth shut; and the eyes distorted; after from half an hour to one or several hours have been passed with little rest in this agonizing state of spasmodic suffering, again a remission takes place, but it is of still shorter duration than the preceding; and thus the child at last either sinks exhausted, or dies in a fit of convulsions.

Doctor Jörg is of opinion, that when the disease does not end in perfect recovery or in death, it may give rise to various chronic lesions. Thus all the portions of the lung occupied by the *atelektasis* may become consolidated, so as to lose all traces of their natural vesicular structure, and so they may remain useless, but not injurious, the functions of respiration being sufficiently performed by the rest of the organ; when, however, the *atelektasis* is very extensive, Doctor Jörg thinks that a chronic *morbus cæruleus* or *cyanosis* may be the consequence, and I may observe that the *foramen ovale* must remain open, for the most potent force which operates in diverting the current of blood into another channel, now acts but imperfectly, and consequently blood in proportion to that deficiency must still flow through the *foramen ovale*. In fact I am persuaded that in some cases of *morbus cæruleus* attributed to an open *foramen ovale*, or *ductus arteriosus*, the true cause resides in the lungs, whose capillaries refuse to draw the usual quantity of blood to an organ, but imperfectly qualified for its aeration, and through the capillaries of which organ it cannot be transmitted except it be aerated, as is well proved by the experiments of Alison and others. In such cases nature perceives at once the necessity of still, to a certain extent, keeping open the former passages for the blood.

It is evident, that in many cases the portions of lung occupied by *atelektasis* may run into acute or chronic pneumonia, and in some persons in whom these diseases do not prove fatal, the foundation of a delicacy of lungs, dyspnœa, and shortness of breath may be laid, which may continue for life. In other cases, a constant fever and bronchitis are the consequence of *atelektasis*, but Dr. Jörg confesses, that all these pathological relations of *atelektasis* require a still more extensive and diligent examination of the subject.

*Diagnosis.*—It requires not a little attention and experience

to analyze the various and complicated phenomena that mark this disease; nor is it at first easy to separate the primary from the secondary symptoms. A careful examination of the relation they bear to each other, as to the period at which each first appears, is of great assistance in making this analysis, for we can thus determine with much certainty which is cause and which effect: this observation applies especially to the respiratory and cerebral symptoms. That a considerable portion of the child's lungs remains in its foetal state, undistended, and comparatively solid, (without, however, having undergone the true pneumonic hepatization,) is most clearly proved by the following group of symptoms: A superficial, short, anxious, at times almost imperceptible, a not unfrequently intermitting and weak respiration; a whining, unnatural tone of voice, diminished power of sucking, and an imperfectly expanded thorax, combined generally with distension of the belly. These, and various symptoms of imperfect aeration of the blood, such as a passing lividity and coldness of the skin, general weakness, &c., sufficiently indicate that the source of the child's sufferings is situated in the lungs. The convulsions, when not produced by cerebral injuries received during labour, are evidently mere consequences of the thoracic affection, and are observed to make their appearance after these, and to be proportioned to their intensity. It is obvious, that unless we have an opportunity of watching the development of the symptoms from the very moment of the child's birth, we will not be able to discriminate with accuracy whether, in such cases, the cerebral affection is primary or secondary; and when we see the child for the first time after all the very complicated symptoms of this disease have supervened, an accurate diagnosis becomes still more difficult, particularly since, as we have remarked above, the original atelektasis may, after a time, originate new lesions, such as bronchitis or pneumonia. Doctor Jörg acknowledges, that at the time he published his valuable work, he was not practised in the stethoscope, and consequently, he cannot from experience point out what assistance that instrument and percussion are capable of giving in the investigation of atelektasis.

*Prognosis.*—It is obvious that much will depend on the prompt application of remedies at the very first commencement of this disease: in fact if instant aid be not at hand when the child is born, but little can be expected; as long as the undistended portions of the lungs remain free from inflammation, we may hope for a complete cure, especially if no very dangerous complications accompany the disease. But when the case is otherwise, and inflammation has once commenced in the portions occupied by the atelektasis, then even an imperfect reco-



very can be only hoped for when these portions were originally of small extent.

*Treatment.*—Much care must be taken to prevent, if possible, the disease from being formed, and the physician must therefore attend especially to the prophylactic treatment. In the first place, we must endeavour to prevent a too speedy delivery, when circumstances give us reason to expect that the process of parturition may prove unusually short. This is to be done by advising the patient to lie as quiet as possible, and to abstain from exerting herself over-strenuously in straining to assist the pains; the aid of mechanical pressure to the abdomen must be likewise avoided, and we must give nothing stimulating internally. In former times, the act of parturition was only regarded as a simple expulsion of its contents by the uterus, and it was thought that the sooner it was accomplished the better; now, however, our views are altered, and we consider this process not merely as one of simple expulsion, but as intimately connected (according to the manner in which it is performed) with the health of the child as well as of the mother.

Every thing that tends to produce unnatural pressure on the head or spinal column must be avoided, and we must be very careful in stopping hæmorrhage from the cord, as any impression of an injurious nature on the nervous or vascular system is peculiarly liable to render the first inspiration imperfect. We must also very carefully remove any accidental obstructions in the mouth or nasal passages, owing to the pressure of mucus, blood, liquor amnii, or meconium.

When the infant is weakly, or but imperfectly developed, in consequence of the dissolute life or some disease of the mother, the supervention of atelektasis cannot be averted without the greatest care and attention, and even the best directed efforts frequently fail; the treatment must in such cases commence at the birth of the child, and must consist of means calculated to stimulate a debilitated frame to a more perfect discharge of the respiratory function. Here the end and the means are peculiarly the same as when a too speedy delivery is the cause of the evil, with this difference, however, that naturally weak or imperfectly developed infants require a much longer continuance of care and attention.

When the proper precautions for averting the formation of atelektasis have not, or have been in vain employed, we must have recourse to remedies whose selection depends on the peculiar exigencies of each case. As the immediate cause of the disease consists in portions of the lung remaining in their foetal condition, undistended by air, we must direct our whole attention to the removal of so injurious a state of things, thereby



preventing both the immediate danger, and the remote but certain ill-effects which arise when these portions of the pulmonary tissue are permanently solidified by inflammation. However energetically we act, we must always bear in mind that the disease may be complicated with pressure on the brain, or straining of the spine, injuries which directly impair the nervous influence necessary for the function of respiration, but which cannot be treated by the application of stimulants meant to excite the injured parts. We must in such cases proceed very cautiously with the means calculated to revive the infant, in order not to push them beyond the proper point, and thus incur the danger of extinguishing the scarcely kindled vital spark by over-stimulation, for here it is not as when we contend with the asphyxia, from mere debility or other causes, where by gaining the first deep inspiration, life is won. Here other evils await us, and even after natural respiration has commenced, death may soon supervene in consequence of apoplectic congestion of the nervous centres.

When the infant arrives into the world exceedingly weak, or when we have reason to suspect the previous application of some degree of violence to the head or spine, we must endeavour to resuscitate it with caution, and in the following manner: In the first place it must be immediately put in a warm bath at 95°, if we cannot succeed in reviving it before the naval string is divided, which, however, should always be attempted, the child being in the bath, and every thing which obstructs the passage of air through the mouth or nose removed, we must rub the soles, palms, and whole length of the spine, diligently with a soft flesh-brush, and we may apply friction either with the hand or a brush to the chest. A little sulphuric ether may be sprinkled on the belly, chest, and back, and may be also cautiously placed in contact with the inside of the mouth and nostrils; the fauces and internal nares may be next irritated with a feather, and we even, when the case seems obstinate, attempt awakening the respiratory energy by introducing some sternutatory powder into the nose. Some recommend us to blow into the nostrils air loaded with stimulating and strong odour, and for this purpose some recommend the practitioner to chew a little garlic; in the meantime cold water may be occasionally dashed with the hand on the abdomen and thorax, and simple water lavements may be used, or else both the water of the bath and that used for the lavements may be quickened by the addition of a little vinegar. If we succeed in thus arousing the slumbering powers of life, we must immediately make a pause in the application of our remedies, in order to avoid the risk of over-stimulation. In general it will be necessary to

resume these remedies in the course of a few minutes, and thus we proceed pausing now and then, but all the while having the pleasure of witnessing the uninterrupted resuscitation of the infant. During this period care must be taken to maintain the bath at a proper temperature, by adding hot water from time to time.

Where some injurious impression has been made upon the nervous centres during delivery, it is useless to attempt artificially inflating the lungs; for the want of vital energy in the respiratory apparatus, produced by the nervous lesion, prevents these organs from performing their proper office, and consequently although the pulmonary tissue may be artificially distended with air, no permanent benefit is obtained; nay, artificial inflation, particularly when pushed too far, may in such cases prove dangerous or even fatal. Doctor Jörg seems to be of opinion, that certain injuries of the nervous system received during delivery, may so impair the nervous energy of the parenchymatous substance of the lungs, that healthy dilatation of the pulmonary tissue, and healthy breathing, are effectually prevented, even although the whole muscular system connected with respiration may make the most violent efforts to carry on this function. This is a very important view, and should not lightly be rejected, supported as it is by a striking case and dissection; indeed I have long been of opinion with Dr. Townsend and others, that the respiratory motions of the extreme bronchial tubes are not merely passive and confined; on the contrary, there is reason to believe that they are active and extensive, and of great importance in the healthy discharge of this function; in fact in some diseases from the beginning, and in almost all towards their fatal termination, asphyxia seems induced not by a deficiency in the motor powers destined to act on the diaphragm, and other respiratory muscles, but by a failure of the nervous energy, which presides over the respiratory motions of the great system of minute air passages. In other words, I believe in the existence of *paralysis of the lungs* themselves.

Our endeavours to resuscitate the infant must be often continued several hours, (during which the child is constantly kept in the warm bath,) before we can hope that the flame of life burns permanently. If the child begins to open the eyes, to move the limbs and lips, if it breathes repeatedly, and even makes attempts at crying, we must immediately dry it, and wrapping it in warm clothing, hand it to the mother, in hopes of its being still further revived by the maternal warmth, or when it can suck, by the natural nourishment.

If notwithstanding our efforts we cannot bring about the

production of deep and strong respiration, and if during the continuance of the asphyxia, a pulmonary affection has been developed, the further mode of treating such cases, must, although their causes are so very different, be precisely the same with that which is proper in infants where the evil depends upon a too speedy delivery, a premature confinement, and consequently unripe condition of the child, an exhausting hæmorrhage, or some mechanical obstruction to respiration; when any one of these causes has produced the state of debility and imperfect respiration immediately after birth, so often referred to, then we must at once employ with the greatest diligence, the means best adapted to remove asphyxia, and excite the respiratory organs to increased action. In such cases, however, our activity and energy are no longer cramped by the apprehension of a cerebral or spinal lesion, and consequently we proceed at once to the employment of the most powerful means, well assured that if we succeed in exciting one deep inspiration, or in causing the utterance of one loud cry, the victory is won.

Inasmuch as the pathological condition arises in the cases before us, from a deficiency in the inward organic instinct which prompts the first inspiration, and from co-existing debility, we must endeavour to stimulate the respiratory organs by those stimuli which excite in them a sympathetic action when applied to neighbouring parts, and by artificially inflating them with air, for the purpose of facilitating their newly awakened efforts. For these reasons benefit is derived from the cold dash applied cautiously to the chest and spine, and from dropping æther on these parts, for if by those means the thoracic muscles are stimulated, they immediately contribute towards the enlargement of the chest, and the lungs now more distended with air, are themselves sympathetically excited to increased exertions, assisted by the application of similar stimuli to the stomach and belly, whereby the action of the diaphragm is increased. *By means of warm baths mixed with vinegar*, while we stimulate the mucous surface, *we endeavour* to act through the skin with lavements, and the nostrils and the palate with æther, which has, when so applied, a powerful effect on the larynx and air passages. Immediately after birth, on perceiving that the infant's respiration is imperfect, its lungs should be fully inflated, a precaution of the greatest value, as tending at once to bring into operation those portions of the pulmonary tissue which must otherwise become permanently affected with atelektasis. In this operation, however, much attention and skill are required, for if artificial inflation be performed at the moment expiration would have taken place, the



respiratory rythm is violently deranged, and much risk and danger may ensue. In artificially assisting respiration either by means of the warmth of an adult, or by a bellows instrument, the blowing in of air must be conducted softly and without too great force, and must coincide with the occurrence of the natural inspiration. An instrument is better suited for the purpose, for we can by its means, estimate more exactly this quantity and strength of the current air we force into the chest; this air is purer than that by another person, and consequently is of more value in exciting the lungs to action, and in revivifying the whole system.

Although this plan of treatment may in many prove effectual in preventing permanent atelektasis of any portion of the lungs, yet in violent cases such success is not always attainable, and we may know that we have failed, by observing the symptoms of superficial and difficult respiration, continuing and accompanied too, in the sequel, by signs of derangement in the circulation. This is the moment for attentive observation and for active exertion, for we must be prompt to mark and to meet the symptoms occasioned by the unsubdued atelektasis; to succeed, not merely energy, but the greatest watchfulness and care are requisite. A new set of measures must be now called into requisition; these measures are to commence the moment those already tried in the bath have failed; emetics are here our sheet anchor, in consequence of the powerful influence they produce on the respiratory and circulating functions; emetics seem in such cases to rouse the lungs to increased action, and tend to promote expectoration, an important matter when pulmonary congestion is to be relieved. After the action of the emetic has ceased, Dr. Jörg recommends minute doses of calomel repeated several times in the day, according to its effects upon the bowels and on the disease. The warm bath must be repeatedly used, particularly during the convulsive paroxysms; when the convulsions are violent, a sinapism one inch broad should be placed over the spine at the nape of the neck, and between the shoulders. It is almost unnecessary to observe that all the means hitherto recommended prove useless, unless unremitting attention is paid to maintain the infant at a proper temperature, and unless the most judicious modes of nourishing its system are resorted to. When all these efforts have procured a remission of the symptoms, we must endeavour to improve the advantage gained, by a continuance of the same means, except the sinapisms, which may be omitted; and we must persevere until all traces of the disease have vanished. The frequency of the doses of calomel and of the warm baths, may be diminished in the same proportion; when on the con-



trary, the means above recommended procure no immediate, or but temporary alleviation, they must be continued with greater diligence than before, the doses of calomel and the baths being used more frequently, the former every third hour, the latter three or four times daily; when convulsions are threatened, the sinapisms to the nape must be repeated; when symptoms of suffocative catarrh make their appearance without any evident cerebral complication, they must be met by an emetic, which sometimes averts the more immediate danger, thus giving time for the other remedies, such as the calomel and baths, to produce the desired effect, by restoring the balance of the circulation, and removing the obstruction in the chest. In order still further to promote the cure of the bronchitis, or of the pneumonia when present, Dr. Jörg advises sinapisms to the chest and neck, and in violent cases the application of a single leech.

It is not necessary to detail the observations, however valuable, which Dr. Jörg makes upon the treatment of various symptoms connected with atelektasis, inasmuch as they would suggest themselves to every judicious practitioner; I shall therefore conclude this part of my subject with remarking, that his twelfth chapter, on the connexion of atelektasis with Medico-legal investigations, concerning newly born infants found dead under suspicious circumstances, contains much novel and interesting matter.

*Traité Clinique des Maladies du Cœur précédé de Recherches nouvelles sur l'Anatomie et la Physiologie de cet organe.—*

Par J. BOUILLAUD, Professeur de Clinique Médicale à la Faculté de Médecine de Paris, avec des Planches, tom. ii. 1836.

THE progress of science is curious. Its progression is never an equable motion. It sometimes lies, even for ages, as if quite torpid, no advance is made, and it seems to the careless or unreflecting observer as if its last stage had been reached, and that in knowledge no further step could be gained; some 'fact,' apparently trifling, is at length discovered, or observed in a new light; an impulse, slight at first, is given; the spark is lighted; the movement becomes every instant more rapid; discovery succeeds discovery, with a rapidity with which even the most active learners can scarcely keep pace, and in an incredibly short space of time so much more knowledge is acquired, that what seemed almost perfection but a short time before, comes to be considered but as little removed beyond mere elementary matter.

Medicine has lately made one of these rapid strides, and the reflections above have naturally arisen from a moment's comparison in our minds of what our knowledge now is, compared with what it was, in thoracic diseases.

The comparison is well calculated to excite our wonder, but extended as our present knowledge is, compared with that of years ago, we ought to reflect that we may be, and most probably are, in relation to our successors, as our predecessors have been to us, and that far more remains yet to be achieved than has yet been attained. One necessary result of the rapid advance of our knowledge, is a succession of works to chronicle the various improvements as they arise, and one of those works we have now before us. Bouillaud's work on Diseases of the Heart, is one of the most extended that have yet appeared, and as the latest, contains much information not to be found in preceding works. It is divided under two grand heads, the first containing the anatomy and physiology of the heart; the second its diseases and malformations.

We shall but briefly dwell on the subjects under the first head. On the mere anatomy of the organ our author adds nothing to our previous knowledge, but under this head entertains a question of some interest viz. what is the size and weight of a healthy heart? The terms hypertrophied and atrophied heart, dilated and contracted cavities, are too often carelessly and erroneously used in description, without reference to circumstances of disease, or the manner of death, which always materially affect the appearance afterwards presented by the heart. A patient dies of some acute disease which kills after a very short illness; the heart is found firmly contracted like the sheep's heart in the shambles; scarcely a trace of cavity is found, and such a heart is then learnedly described as a heart with diminished cavities, and presenting a specimen of what is called concentric hypertrophy. But the contracted state of such a heart, is its natural state, just as much as the contracted state of the bladder is its normal state after the urine has been expelled. The thickened parietes, and contracted cavities of such a heart are not disease. Another patient dies of suffocative catarrh; the right ventricle has for days, perhaps for weeks, been vainly labouring to propel the blood through obstructed lungs; it at length yields under the too great labour; it is distended just as any hollow muscle, stomach, colon, rectum, or bladder would be, if similarly circumstanced, and the state of the right ventricle, which is then but the necessary state of such a hollow muscle, and from which (if the cause were removed) it would as speedily recover as stomach or bladder, is marked down as a permanent state of disease, and an efficient cause of numberless

symptoms. There is no error so frequently committed as that of considering the capacities of the different cavities of the heart, or the increased thickness of its parietes, to arise from independent action in the organ itself. The heart obeys the laws of other hollow muscles, adapting itself to the quantity of fluid contained, and the resistance to be overcome; not exerting in almost any case an independent power on the size of its cavities, or its own muscular exertion. Indeed on a little consideration it will be obvious, that any other principle would be nearly incompatible with the continuance of life, or circulation; and if the principle advocated here, be correct, then a very large proportion of what are now described as dilatations, hypertrophies, &c., will be considered merely as the natural results of varying causes acting on a muscle, and the state of that hollow muscle will not be considered as an independent or primary disease, or to be treated as such. Laennec, Corvisart, Cruveilhier, and all observers, admit, that it is exceedingly difficult to lay down any standard by which to determine precisely whether any given heart is enlarged or in a contrary state; and with the opinions we have stated above, we must say for ourselves, we look upon the difficulty as of very little consequence, and the attempt to lay down any certain standard of size for the heart, about as likely to be realized, as a similar attempt to lay down a standard of uniformity for any other muscle, for instance the deltoid. There are of course extreme cases of dilatation and hypertrophy of the heart, which there is no mistaking, but such cases never exist as primary diseases, and the subjects of such affections die, not of such a state of the heart, but of some lesion of which that state of the heart is only a consequence. So long as individuals differ in natural conformation, in muscular strength, in occupation in life; and labour through different diseases more or less obstructing circulation, so long will the heart, like all the other muscles of the body, present itself under very different aspects, as to size and capacity, and defy the most careful attempts to establish a reference standard. Our author has, however, made the attempt, and if not successful, deserves at least praise for his labour and ingenuity.

He divides the cases, from the examination of which he hopes to deduce his standard, into three classes, the first consisting of cases presenting healthy hearts, the second containing instances of atrophied hearts, and the third instances of hypertrophy and dilatation. The weights and measurements of each portion of the heart, of its valves, vessels, &c., are given with what we are sure, is very tiresome, and we fear is very un-instructive detail, and with all the grave trifling for which



French writers are very often remarkable; for instance, one of the important measurements gravely noted, is that “*La Valvule bicuspidæ est d’untiers plus épaisse que la tricuspidæ.*”

We shall give his resumé drawn up from the details. From the examination of thirteen healthy hearts, he deduces the average weight of a healthy adult heart to be from eight to nine ounces. Of these the minimum weight was about six ounces, and the maximum eleven ounces. It is obvious, that where the range for averages in only thirteen cases, includes such extremes as that one case nearly doubles another, little reliance can be placed on the average as a guide. Similar observations apply to Bouillaud’s attempt to establish a mean-standard measure of the thicknesses of the various parts of the parietes of a healthy heart, and no better proof of the folly of such an attempt can be adduced, than a comparison of results obtained by different observers. Thus, Lobstein lays it down as satisfactorily proved by his observations, that the right auricle is double the thickness of the left, while Bouillaud as positively asserts, that the left auricle is one-third thicker than the right.

If it be possible to establish any standard of weight and size to which to refer in *post mortem* examinations, it certainly will not be established by weighing or measuring any number of hearts, however great, and then deducing the average. The data, to be of any avail, should include what it will be always nearly impossible to obtain, the weight and size of the other muscles of the subject, for just as labour, mode of life, and feeding, influences other muscles, so will the muscular structure of the heart and its capacity be influenced, and even after the most laborious examination in measuring, weighing, &c., we doubt whether such standard would be equal in accuracy to the judgment of a well-trained eye, accustomed to the relation which should exist between other parts and the heart. We know well from experience, that in diseases of the chest, the eye will detect more satisfactorily and more quickly than measurement, alterations in motion or in the size of the parietes of the thorax.

The next chapter is on the impulse or motion, and the sounds of the heart. We shall not occupy our pages with the discussion of these points. To those who are not aware of the difficulties of the subject, it seems unaccountable, that apparently so simple a question as the motion of the heart in the living animal, could not be satisfactorily and speedily determined. So thought once the Royal Academy of France, and Senac tells us, that the movements of the heart having given rise to much controversy, the Royal Academy ordered a grand



field day, when actual inspection should be made in their presence of the movements of the heart in living animals, and that then by their evidence and their fiat, all doubts should be removed. The day came; the animals were tortured; the movements were looked at; and the Academy came to the conclusion that they could come to no conclusion at all. The subject remains still in doubt as when the Academy examined it a century ago; advances have, it is true, been made, but honesty obliges us at the present moment to say, that all the theories as yet offered of the motions and sounds of the heart, seem at present to be just about equally well balanced as to their probabilities of being true. There is an additional reason for not going into the mooted question. The British Association has now had committees sitting for nearly two years in Dublin, London, and Edinburgh, to investigate these points in physiology, and from what we know of the character and zeal of many of their members, we feel confident, that the next meeting of that Association will give us information far superior to what has ever yet been attained, and probably beyond what we can possibly anticipate. While on this subject, we may, perhaps, suggest, that it would be well for those engaged in the inquiries, to ascertain whether the position from which nearly all inquiries set out, be really true, namely, that the point of the heart gives the shock or impulse against the thoracic parietes. We had our turn in perpetrating experiments on living donkeys, goats, frogs, &c., and we can, from experience, make the following statement: grasp in one or both hands the sides of the thorax in a young ass, the impulse of the heart will be plainly felt, and growing stronger and spreading over a more considerable space as the hand rises from the sternum of the animal, up into the space between the scapula and the ribs. Kill the animal, and the heart is then found with the apex down to the sternum, and with an apex so conical and so sharp, that it is at once obvious, the impulse felt high up, and felt indeed not only high up, but on both sides, could never have been caused by an apex so situated or so shaped.

The chapters on the abnormal sounds of the heart, *bruit de soufflet*, *de cuir neuf*, &c., are good, but very diffuse; we could not with advantage make any extracts. The cause of "*bruit de soufflet*" and its varieties, "*bruit de lime*, *de scie*," &c. assigned by Bouillaud, is, we think, not satisfactory. He lays it down as a principle, that "it is to the increased friction of the blood against the sides of the arteries, that *bruit de soufflet* is owing." This position is untenable for these reasons: the sound is heard in the arteries of the uterus during pregnancy, when the circulation is not subject to more friction in the uterine,

than in other arteries, while from the others it is absent. It is heard in the hearts of arteries of persons in a state of great debility, and it is heard in various states of the heart and arteries, where there is no evidence whatever of there being increase of action in either heart or arteries to cause increased friction. And let the friction of the blood against the parietes of the healthy heart or arteries be increased ever so much by violent exercise, it is not produced, which it should be if increased friction were its cause.

The theory offered by us of the mechanism of bruit de soufflet, is, of course, denied by Bouillaud. That theory offers as the two conditions necessary to cause it: first, a current-like motion of the blood; and second, a state of the arteries permitting a corresponding vibration in their sides, which vibration, produced by the current-like motion of the blood within, gives bruit de soufflet to the ear, and fremissement to the finger. We shall, for the present, merely state the theory, observing that Bouillaud has used the arguments, and in some places almost the very words, of a paper of ours, in controverting Laennec's Theory of Spasm being the cause of bruit de soufflet, without acknowledgment of their source.

On the subject of the uterine bruit de soufflet, Bouillaud maintains an opinion abandoned, we believe, by every well informed observer. He asserts, that this sound is not in the uterus at all, but is produced in the trunks of the iliac arteries by the pressure of the uterus, just as pressure on the trunk of the femoral artery will cause it. His argument on this point is curious. He observes—

“If the placenta souffle be produced in the large arteries of the pelvis, by the compression of them by the uterus, then any other cause exerting compressing force ought to produce it; but if the sound be in the uterus, then it is difficult to comprehend how compression of these trunks could produce a similar sound.”

And then adducing a case of ovarian disease, in which souffle was heard in the pelvis, and produced by the pressure of the tumour on a large artery, he at once arrives at the conclusion, that in pregnancy the cause must be the same. Bouillaud's instance of bruit de soufflet in ovarian disease merely shews, that an ovarian tumour may, by pressing on an arterial trunk, cause bruit de soufflet, but it does not at all prove, that in pregnancy or in other instances, the sound must always have the same cause.

We now enter on the most important part of the work, and here we cannot help protesting against the absurd fashion of

most French writers when commencing any subject, in spending pages in pompously telling us how they intend to philosophize and to generalize, and speaking, each writer for himself, as if he were the first who ever introduced inductive reasoning, or took the trouble to substitute experience from facts, or theory for hypothesis. We are sure we could select many French works, the introductions of which might be transferred from one to another, and which would, like ready made prefaces, answer any book.

These observations have occurred to us from the perusal of Bouillaud's General and Introductory Observations on Diseases of the Heart; we have waded through them, and we have nothing in return but regret for our lost time.

Bouillaud divides diseases of the heart into four classes. The first comprises "diseases consisting essentially in lesions of the capillary and nutritive actions of the tissue of the heart and its membranes." This class contains inflammatory affections, hypertrophy, atrophy, hydro-pericardium, &c., and their consequences in the various forms of valvular diseases, &c. The second class consists of "neuroses of the heart, divided into three orders, hyperdynamia, or increase of action, as in palpitation spasm; adynamia, or deficiency of action, as in syncope and ataxodynamia, or irregularity of action." The third class contains "lesions essentially and primitively physical, or mechanical in their action, as dilatation or narrowings, rupture, wounds, displacements;" and the fourth class contains "malformations."

The most important diseases of the first class are pericarditis, endocarditis, and carditis.

Our author commences with pericarditis, a disease supposed by Laennec to present no signs by which to distinguish it, but which now is, in most instances, recognized, and with certainty, during life.

The pathology of pericarditis given by our author, adds nothing to our previous stock of knowledge; he dwells, however, strongly, and not without reason, in regard to practice, on the fact that in most cases of pericarditis there is also endocarditis, or inflammation of the lining membrane of the cavities of the heart. He explains this by supposing that the inflammatory action is readily conveyed from the one membrane to the other at the root of the aorta, where these membranes come nearly into contact. The mode of propagation of the diseased action is of minor consequence, but the knowledge of the fact should make us turn our attention, when treatment is available, to the steady and long-continued use of those means, which, by removing the inflammatory affection of the internal membrane of the cavities,



will prevent the formation of organic disease in the valves. The signs of pericarditis Bouillaud divides into local and into constitutional signs.

The account of the local signs is good, but too lengthened for insertion, and on this part of the subject we are dissatisfied with Bouillaud. One of the most important signs of the disease is the bruit de cuir neuf, first noticed by Collin, then neglected, again noticed and investigated by Dr. Stokes, \* and by him proved to be a sign of great importance in forming the diagnosis of the disease. Bouillaud does not notice Dr. Stokes's papers, but takes all the credit to himself of pointing attention to this sign. Bouillaud confirms the observation of Louis, that in many cases there is a projection over the præcordial region. He omits, however, to state, that this prominence is owing in many recent cases not to any projection of the cartilages of the ribs from distention behind them, but to subcutaneous œdema of the integuments covering the præcordial region. This œdema of subcutaneous tissue, corresponding with inflammation of internal organs, is very singular, and its occurrence not very easily explicable; we have seen it in pleuritis, as well as in pericarditis. Bouillaud confirms what is now universally admitted, that of all the causes giving rise to pericarditis, rheumatism, in its acute form, is one of the most powerful. He puts forward strongly, and not more strongly than it merits, the fact we are afraid not sufficiently attended to, that pericarditis and endocarditis are not to be regarded as the mere result of metastasis, but as an integral part of acute rheumatism. The ignorance of this fact too often makes the practitioner look on in mistaken security, fancying that as long as the rheumatism is firmly settled in the joints, the heart is safe, while all the time the foundation of irreparable mischief is being laid in the heart, and it is perhaps only in years afterwards the effects are discovered, and then too late. The view in which Bouillaud places the connexion of pericarditis is the proper one, that the fibro-serous covering of the heart, like similar tissues in other parts, is equally liable to rheumatic inflammation, and simultaneously with the joints.

“Such is the frequency of pericarditis with rheumatic patients, that we may safely calculate that of twenty patients affected with general acute rheumatism, there will be at least one-half who will be affected with pericarditis or endocarditis, or both.

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\* Dr. Stokes's very valuable paper, “*Researches on the Diagnosis of Pericarditis*,” is published in the Number of this Journal for September, 1833.



"Great value is attached to metastasis in developing rheumatic pericarditis. I will neither deny nor condemn the doctrine of metastasis; but I can assert, on the strength of numerous observations collected with care, that pericarditis is not always the result of metastasis."

We can of our own experience bear ample testimony to the truth of these observations, particularly the last, and to the importance of recollecting them in practice. We have seen pericarditis arise when the rheumatic inflammation of the external parts was at its highest, and keep pace *pari passu* with that inflammation; and in some instances the occurrence of the disease in the heart was altogether overlooked, from the mistaken belief that because there was no disappearance of the inflammation from external parts, or no metastasis, the internal organs were safe.

The chapter on treatment of this important disease is miserably defective. He counsels, in general terms, bleeding, leeching, low diet, and poultices; and if the disease be chronic, the application of blisters and mercurial frictions.

There is much more nicety and more care requisite than is comprised in these directions. General bleeding ought not to be dispensed with in any case where it can be borne, but in many cases the sudden incursion of so violent a disease, and in so important an organ, gives such a shock to the whole nervous system and to the organ itself, that the patient is like one suffering under the shock of a severe injury, and we dare not have recourse to general depletion; but by relays of leeches we check the progress of the disease, while reaction is setting in, when we can deplete more freely. In such circumstances too there is a caution necessary to be well remembered, and that is, that the patient shall remain in the horizontal posture, and not attempt any exertion. In many cases the pulse is weak, the action of the heart is feeble and tumultuous, a very slight exertion is sufficient to cause fainting; and in that fainting fit, caused perhaps by the patient only sitting up to reach a drink, death has taken place. Bouillaud also omits all notice of the combination of calomel and opium, on which we in these countries rely so firmly and so justly, as the best aid to blood-letting in curing inflammation of serous membranes.

#### ENDOCARDITIS.

We now come to a chapter on a very interesting form of heart disease, both in regard to pathology and practice, viz. "Endocarditis, or Inflammation of the internal Membrane of the Heart, and of the fibrous Tissue of the Valves." Bouillaud,

after commenting on the scanty information given by preceding writers, observes :

“ We now see how deficient has been our knowledge on this point. The facts which I have accumulated during three years enable me to assert, that inflammation of the lining membrane of the heart is (contrary to the opinion of Laennec) a very common disease, and as frequent as pericarditis. This assertion will, I know, appear an exaggeration to those who are not as yet conversant with the appearances of this disease.”

He then notices some of the difficulties which obscure the discovery of the disease, and of its consequences :

“ Secretions produced by the disease, whether serous or purulent, are swept along by the waves of blood which traverse the cavities of the heart, and any small quantity which may remain in the cavities of the heart is mixed and confounded with the blood, so that the palpable characters which are presented in inflammation of other serous membranes, are absent in inflammations of this membrane.”

Much more information than has yet been obtained, must be gathered, before a general history of endocarditis can be attempted. Laennec believed that the deep tinging of the internal membrane, which Bouillaud calls the first stage of endocarditis, was nothing but colouring derived from imbibition of the blood. Even in Bouillaud's description of the pathology of endocarditis we find proof, if not of the correctness of Laennec's assertion, at least of the absolute necessity of much more accurate information than we yet possess. Bouillaud says that in endocarditis the shade of colour is much deeper in the right than in the left cavities. Admitting this to be the fact, disease ought then to be much more common in the right than in the left side; but this is not so, and we can therefore scarcely admit the redness to be a proof of inflammatory action. If lymph be found on the membrane, there is much less difficulty in determining the existence of inflammation; but even then, in many cases, it may be a matter of great difficulty to say, whether the lymph has separated from the blood, or has been secreted by the membrane.

Endocarditis, Bouillaud observes, exercises a remarkable influence on the blood contained in the inflamed cavity, coagulating it, and converting the clots into white, semi-transparent, elastic, glutinous, concretions, adhering to the parietes of the cavity, and intertwined with the chordæ tendineæ and columnæ carneæ. These appearances are valueless as proofs of endocarditis. Bouillaud states they are more frequent in the right than in the left cavities. If they were evidences of disease of the

lining membrane, then the right cavity should be more liable to disease than the left, but this is not the fact.

Vegetation and granulations on the valves are supposed by Bouillaud to be the products of the second stage of endocarditis. Laennec, it will be remembered, considered these vegetations as mere depositions of the fibrine of the blood on the edges of the valves, just as the fibrine of the blood is caught on rods whirled about in recently drawn blood. The question is one of importance. We are inclined to agree with Bouillaud, for we have often seen layers of granular lymph not entangled in the pillars or strings of the valves, but on the smoothest surface of the mitral valves, that washed by the blood, and on the internal surface of the left ventricle, immediately beneath the root of the sigmoid valves, its smoothest part, situations the least likely to favour the formation of polypi, or the mere deposition or attachment of fibrine from the fluid blood. Bouillaud follows up the principle, referring the various diseases which are known as vascular diseases to the effects of inflammatory action running its course unchecked in the fibro-serous tissue of the valves. We are sure that where this principle is made a leading one in the treatment of many of those affections, the disease is stayed in its progress, life is greatly prolonged, and much suffering, otherwise inevitable, warded off. Bouillaud deserves great credit for his able advocacy of this view, and the chapters on it will indeed amply repay in the reading the pathologist and the practical physician. In the Appendix, under the head of Polypi, is a case so strongly supporting the views here advocated, that we cannot omit inserting it. It puts, we think, beyond all doubt the important part which inflammation plays in producing valvular disease.

“A young man, ill of fever, was seized with considerable agitation, with hurried respiration and circulation, and died rather suddenly with these symptoms.

“*Autopsy.* The aortic valves were covered with a thin, false, granular membrane. This false fibrinous membrane could be torn off, like that which is found in pericarditis or pleuritis. The layer in contact with the valves seemed already organized, and there can scarcely be a doubt that in some days it would have become adherent to the valves, and would have produced thickening. On the surface of the valves, as well as on the lining membrane of the aorta, there were red points, and below the valves the lining membrane of the ventricle was opaque and milky. Upon the inner surface of the mitral valve there were fibrinous concretions similar to those on the aortic valves, and on the inner lining membrane of the auricle there were a number of red points similar to those which in false membranes precede the formation of vessels.”



But while we bestow full praise on the pathology of endocarditis, we must say that we think he has not succeeded at all in laying down any diagnostic signs of the disease in its first stage. A continuance of that untiring investigation, which has already thrown such light on heart diseases, may, we hope, in time obtain that information for us. As one of the consequences of endocarditis, Bouillaud reckons induration of the valves, with narrowing of the orifices of the heart; and to the consideration of the symptoms of these diseases we now come, and according to his usual mode, the symptoms are divided into local signs, furnished by the heart itself, and into those drawn from the examination of other organs. This portion of Bouillaud's work, devoted to the general consideration of valvular disease, is extremely deficient. The information is so scanty, that to supply what is wanted would almost require a full history of the symptoms and diagnosis of valvular disease.

In the article on prognosis of valvular disease, there is, however, one deficiency of such consequence, that we cannot pass on, without supplying it. The diagnosis of narrowing of the auriculo-ventricular opening, for instance, is generally a matter of no great difficulty, but in attempting to give the prognosis, it is of the greatest consequence to be able to estimate the amount of narrowing, for on this will depend the probabilities of life. If the narrowing be considerable, it is impossible for the circulation to go on without dangerous congestion occurring in important organs. If the narrowing be trifling, the patient who is the subject of it will, under proper management, pass through life with perhaps little disturbance. Bruit de soufflet, heard permanently in the sub-mammary region, is the most certain sign of narrowing of this opening, but it tells us nothing of the amount of narrowing. It will be as intense, as sharp, as rough, or as musical, in cases where there is nothing but thickening of the edge of the mitral valve, as in cases of the most extreme narrowing. The difference of tone in the bruit de soufflet gives us no information in our prognosis, but from taking the bruit de soufflet and the pulse together, we obtain the information we want. The bruit de soufflet, under proper cautions, tells us of the disease of the valves, and according as the pulse is quick and small, or full and slow, we estimate the amount to which the narrowing has gone. In forming, however, this estimate by the pulse, we must take care that the patient is not labouring under any excitement from inflammatory action in any other organ, for then the pulse may be very small and very quick, which at another time will be full and regular. If the pulse be moderately full, and not quick, it matters little how intense the bruit



may be, the amount of obstruction is not great, and years of good health and enjoyment may be before the patient.

Ignorance of what has been now noticed brings evils of two opposite kinds. On the one side, the physician, who estimates the amount of narrowing by the tone or clearness of the bruit, unnecessarily terrifies his patient by an announcement of serious heart disease, in cases which would be better left alone, than treated by rules dictated by unnecessary caution. On the other side, the physician, who has perhaps seen cases pronounced as instances of this disease proceed for years with little or no interruption to the circulation, disregards afterwards the information given by bruit de soufflet, and allows the insidious disease to gain such a hold, that it becomes at length no longer possible even to check it.

Under the head of treatment of endocarditis, Bouillaud speaks highly of the application of blisters over the region of the heart, and then applying daily to the blistered surface from ten to fifteen grains of powdered digitalis.

The chapter on treatment of valvular diseases is, we are sorry to say, very defective.

Carditis, or inflammation of the tissue of the heart, is accurately described as far as regards its pathology, but Bouillaud confesses that as to its diagnosis, he knows no sign by which to distinguish it from pericarditis or endocarditis. The description of the pathology of carditis is very good, and ramollissement and suppuration of the heart are considered as stages of the disease.

"Inflammatory ramollissement of the heart presents itself to us under two kinds, which may be designated the red and white or grey ramollissement, and to these we might, perhaps, with propriety, add the yellow. Whatever the variety of ramollissement under examination, it may be recognized by the following characters: The tissue of the heart has lost its natural firmness, so that it breaks down under the slightest pressure of the fingers. The parietes of the ventricles are flabby, and fall flat upon one another. In the red ramollissement, the muscular tissue of the heart is red, brownish, and sometimes of a violet tint, and the intermuscular cellular tissue is injected. Muddy and bloody serum is infiltrated in the tissue of the organ, or under the external and internal serous linings. In the white ramollissement, the congestion and redness are less marked, and the place of the sero sanguineous effusion is supplied by true pus. The white ramollissement is a more advanced stage of the disease than the red. The third variety of ramollissement, the yellow, appears to occur in certain cases of chronic carditis. It coincides with a general discoloration, a yellow tinge of the exterior of the bodies of patients who have presented it."

As this ramollissement has been described by Laennec, we need not copy the description. The first and most important step towards diagnosing a disease, is a familiar acquaintance with its pathology. Impressed with this, we have extracted the account of the pathology of carditis, in the hope that attention being directed to it, we may be able to attain its diagnosis.

We shall pass over the chapters on cancer, tubercle, serous kysts, &c., seated in the heart, which, however interesting to the general pathologist, do not possess much practical interest, to come to that part of the work which treats on hypertrophy. Bouillaud adopts Bertin's classification of hypertrophy, viz.: simple hypertrophy, that is, thickening of the parietes of the heart without alteration of size in the cavities; concentric hypertrophy, or thickening of the parietes with diminution of the cavities, and hypertrophy with dilatation, the active aneurism of Corvisart. He makes a further division into general and partial hypertrophy. The size which a hypertrophied heart sometimes assumes is very great. In one case given by Bouillaud, the heart weighed twenty-two ounces; the weight of a healthy heart is about eight or nine ounces.

#### SIGNS OF HYPERTROPHY.

"The permanent increase of the force and extent of the impulse of the heart, and the increase of its two sounds, are the fundamental signs of simple hypertrophy of the heart."

The latter part of this statement is erroneous, for in some cases of hypertrophy the first sound of the heart is altogether lost. Bouillaud corrects himself in another place by stating that in some instances "the sounds of the heart are dull, low, and as it were smothered." The carelessness of writing exhibited in these contradictions is unfortunately too common in medical works.

In the following observations we cordially concur:

"In pure, uncomplicated hypertrophy of the heart, the venous circulation is free, there are no passive congestions of blood or serum in the different organs or their serous cavities, or in the cellular tissue.

"The sketch which I have drawn of the influence of hypertrophy of the heart on the functions of the body, is very different from that generally given by authors. In their works there are laid down as the signs of hypertrophy or active aneurism of the heart, 'violent injection of the face, congestion of the venous capillaries, dropsies, passive hæmorrhages, dyspnœa, smothering, &c.' These signs are really physiologically false.

Such signs would denote a mechanical or vital obstacle to the circulation. But how can the phenomena of obstructed circulation, and increase of strength in the heart, coincide? On the contrary, so far from impeding the circulation, hypertrophy of the heart must confer an additional energy on the circulation. Can any one suppose that hypertrophy of the heart would produce symptoms which belong to obstruction or debility of circulation."

Bouillaud advocates the opinion of Legallois, Richerand, and Bertin, that hypertrophy of the left ventricle exerts considerable power in producing hæmorrhage into the tissue of the brain, and that patients labouring under it are of course more disposed than others to apoplexy. We have not space to discuss this question, but we believe that the influence of hypertrophy of the heart in causing apoplexy is very much overrated. In the chapter on treatment of hypertrophy of the heart, as in the preceding chapters on treatment, the information is very meagre. No rules are laid down for distinguishing between those cases in which it may be prudent to diminish the energy of the heart's action, and those cases in which, so far from attempting to diminish its strength, it is a most necessary part of the treatment to actually increase the hypertrophy or strength of the organ. A knowledge of those very different cases forms the nicest and the most scientific part of the treatment of diseases of the heart. In reducing the action of the heart, Bouillaud speaks in raptures of the effects of digitalis.

"It is," he observes, "the real opium of the heart. I will not dwell upon the different modes of exhibiting it. I have employed it with most advantage by the endermic method. A blister is to be applied over the region of the heart, and each day powdered digitalis, in quantities from six to fifteen grains, is sprinkled over the surface. By this application is diminished, as if by enchantment, the number and strength of the beatings, &c."

On neuroses of the heart, constituting the second class of diseases in Bouillaud's division, our knowledge is very imperfect. Bouillaud commences the diseases of this class with the consideration of nervous palpitations. Of these, the most interesting form is that which our author calls "Chlorotic palpitation." As this form of palpitation closely resembles serious organic disease, and is likely to be confounded with it, we shall give our author's sketch of it.

"The mistake is likely to be made by physicians who are not familiar with it, for chlorotic patients, like patients labouring under organic disease, suffer from dyspnœa and stuffing, on the least exercise. Chlorotic palpitations are not always accompanied with

well marked bruit de soufflet in the heart ; but constantly in severe chlorotic cases, the arteries of large calibre, particularly the carotid and femoral arteries, give out varied souffles, sometimes *le ronflement d'un diable*, the sound of wind whistling through a narrow slit, the buzzing of beetles, or the cooing of a pigeon. During a period of three years, I have met one hundred times with this curious phenomenon in chlorotic females."

A considerable number of nervous affections of the heart are connected with spinal neuralgia, or spinal irritation, for our knowledge of which we owe so much to the labours of the Messrs. Griffin of Limerick, and without an intimate acquaintance with their work no one could come, with much benefit to his patient, to the diagnosis or treatment of the nervous palpitations of females.

The third class of diseases consists of those, being essentially and primitively physical ; and mechanical lesions of the heart.

The first subdivision is "wounds." Under this head there is an instance of the heart being pierced by a fragment of a fractured eighth rib. Several instances are cited from Ollivier, to shew that wounds of the heart are not always immediately fatal, and, on facts stated by Ollivier, Bouillaud asserts, that they sometimes heal. We need not trouble our readers with the treatment. This is followed by observations on rupture of the heart, and on dilatation of the cavities of the heart and of its orifices.

Displacements of the heart constitute an interesting subject of inquiry, connected as they often are with diagnosis. Bouillaud mentions the ordinary causes as tumors pressing against the heart, effusions into the cavity of the pleuræ, &c. We have already noticed, more than once, Bouillaud's neglect of, or his want of acquaintance with our medical literature. This article also exhibits it. He does not notice the very remarkable case of displacement of the heart, related in a number of this Journal by Dr. Stokes, and produced by an external injury. The fourth class consists of congenital lesions as to situation and formation of the heart ; among these the permanency of the foramen ovale necessarily holds a place. The following are Bouillaud's observations on the connexion between open foramen ovale and cyanosis, or blue disease :

"Many physicians have attributed exclusively to open foramen ovale, the disease known under the names of cyanosis, blue disease, blue jaundice, which, as its name indicates, signifies a violet or bluish tinge, either of the whole surface of the body, (a rare form, however,) or of some parts only, as the face, particularly the lips, the ears, the extremities of the fingers, the nails, &c. We do not main-



tain that the mixture of a certain quantity of blood from the right cavities of the heart, with that from the left, may not assist in producing cyanosis; but its influence is certainly far less than generally supposed. One of the strongest objections to the opinion generally entertained, is, the observation of Fouquier, that the skin of the fœtus, in which the admixture of the two kinds of blood freely takes place, is not of a blue shade. And Breschet saw in an infant a month old, the left subclavian artery arise from the trunk of the pulmonary artery, without its producing any change in the colour of the limb supplied by it. And in conclusion, we constantly observe a violet or bluish tinge in the skin of individuals, who labour under any considerable obstruction to the circulation. Is it not then extremely probable, that in cases of open foramen ovale, the blue colour proceeds not from this defect, but from the narrowing of the orifices of the heart, or of the pulmonary artery, which very generally accompanies it."

We have in our possession two preparations of open foramen ovale, which support this view. One is from a man of middle age who died of phthisis, and never presented any symptom of cyanosis. The other from a female who died at the age of 25, in whom there was, during life, intense cyanosis; but in her case there is narrowing of the pulmonary artery to the size of a crow quill, which is also only provided with two valves. There is also a large opening between the two ventricles. It is odd that among the arguments adduced by our author against open foramen ovale being at all necessary to produce blueness, the colour of the lips and extremities in Asiatic cholera did not occur to him. In that disease the blue is fully equal to the most intense cyanosis, and produced often in half an hour. In truth, all that is necessary to give to any part of the body the blue or dark violet tinge, is mere stasis of the blood in the capillaries. We have that condition in cholera, in obstructed circulation from any cause, and we have its sufficiency as a cause proved beyond all doubt in Hunter's experiment, of enclosing between ligatures a portion of the carotid artery, when on opening the artery after some hours, the contained arterial blood was dark as venous. In cases of cholera, or any cases accompanied with stasis in the capillaries, the most vascular parts, as the lips, the extremities of the fingers under the nails, &c. being the best supplied with capillaries, necessarily first show the dark or violet tinge.

There is an appendix on polypi in the cavities of the heart, from which we shall make a few extracts. He divides them into three kinds: amorphous polypi of recent formation, without any trace of organization; polypi, or fibrinous concretions presenting rudiments of organization with or without the presence of pus; and polypi, or fibrinous concretions completely orga-

nized. The first variety is very common. The second resembles closely the fibrinous clot found on the surface of inflamed blood. The third is more rare; the polypi of this class adhere firmly, and they are provided with vessels, and resemble fungous growths. In many polypi pus is found in their centre. Bouillaud observes:

“Legroux and other authors consider this pus as the product of inflammation of the clots which contain it. For my own part I do not believe in this. The pus appears to me to have been first secreted in the cavity of the heart, or carried there by absorption, and then to have caused the formation of a clot which has enclosed it. At the period when pus is found in the centre of a clot, it scarcely presents any rudiments of organization, and it is difficult to conceive, how in this state the clot could undergo purulent inflammation.”

Bouillaud's theory of the presence of pus we think quite untenable, for it is more difficult to conceive fluid pus remaining in the cavity of the heart, waiting for its envelope of solid fibrine, than it is to suppose the fibrine to undergo a purulent change. Bouillaud's objection to Legroux's theory, on the ground that the mass of fibrine could not form pus in its centre, is overturned by Gendrin's experiment, in which on tying an artery so as to make the blood coagulate, and introducing into the centre of the coagulated blood a grain of shot, purulent matter was found around the foreign body, formed by an independent action of the fibrine itself. Bouillaud lays much stress on inflammation of the lining membrane of the heart or of the valves, as having a tendency to promote the formation of polypi. The signs which he gives as diagnostic of polypi, are common to various other affections, “tumultuous beatings of the heart with dulness of its sounds, or bruit de soufflet, stuffing of the chest, orthopnoea, venous congestions, &c.” Dr. Harty, of this city, in a valuable paper in the Transactions of the King and Queen's College of Physicians, drew attention some years ago to the formation of these bodies in the cavities of the heart, and dwelt on a peculiar thrilling in the pulse as diagnostic of their presence. The investigation of the subject is very difficult; we must have very numerous cases, indeed, before we can determine satisfactorily between the signs which belong to polypi, and those arising from the valvular affections of the heart, which most often accompany them. Another point to ascertain is, whether these bodies really existed prior to the last struggles of life and circulation. The rapidity with which they are formed, even the densest of them, will astonish those not accustomed to observe it. A patient under the care of our

colleague, Dr. Hunt, in Jervis-street Hospital, died of aneurism of the aorta. In the morning, the pulse was equal in both arms, the circulation necessarily free. Death took place at eight o'clock that evening, and on examination, the trunk of the left subclavian was found firmly plugged with a dense white coagulum, as hard, as colourless, and as firm as the strongest of those found in the cavities of the heart.

We have given, we hope, a fair outline of Bouillaud's work, from which our readers may judge of its merits. The general impression is certainly one of satisfaction. The work contains a great quantity of information, and evinces great industry. On pathology the work is excellent, but deficient certainly in many of the chapters on diagnosis, and very deficient in the rules of practice. There is, moreover, through the most of Bouillaud's writings, a trait of character which is unworthy of a writer of eminence, a desire to slur over the merits of others, and to puff his own. Thus where published priority unquestionably belongs to others, Bouillaud generally tells us that years before he had been aware of such and such facts or discoveries; and on the superiority of his own practice the puff is quite "too bad." Bouillaud writes thus of himself:

"Numerous *post mortem* examinations would probably have furnished us with the means of resolving this difficulty in diagnosis: but, fortunately, we have up to the present cured nearly all our patients, (*heureusement nous avons sauvé jusqu'ici presque tous nos malades.*")

This self-trumpeting reminds us of the German fable of the cuckoo for ever sounding his own name:

"Well, then, I protest since they'll give me no praise,  
I'll trumpet myself to the end of my days:  
So saying, away to the forest he flew,  
And ever since then has been crying cuckoo."

D. J. CORRIGAN.

## NOTICES OF WORKS RECEIVED.

"*St. Thomas's Hospital Reports.* By JOHN F. SOUTH, Assistant Surgeon, April, 1836.—This fasciculus contains reports of cases treated by Drs. Roots and Williams, and by Mr. Tyrrell and Mr. Travers. To comment on the value of such publications is unnecessary; they form a most valuable description of medical works, in which the



phenomena of disease are presented to the student as they are met with in nature, and widely differing in their complications and characters from the descriptions of the nosological writers; and we trust that the plan of publishing important cases with the clinical remarks which they have elicited, will be more extensively adopted, until every hospital has its clinical archives. The subjects treated in the present number are the following :—On *Porrigo Lupinosa*, *Hysterical Paralysis*, and *Chronic Dysentery*, by Dr. Roots; a *Case of Compound Dislocation of the Clavicle backwards*, by Mr. Tyrrell; on *Diseases of the Joints*, by Mr. Tyrrell; on the *Use of Wine in Erysipelas*, by Dr. Williams; and on *Encysted Tumours*, by Mr. Travers. Of these the most important is the case of dislocation of the clavicle backwards by Mr. Tyrrell, an accident so rare, that no case of it had occurred to Sir A. Cooper, when he wrote his celebrated work on dislocations. This case was simply and successfully treated, and we shall give the particulars in the scientific intelligence.

The following observations on the diagnosis of malignant diseases by Mr. Travers, are so just that we insert them with pleasure.

“ A large class of cases go under the denomination of suspicious cases; they have an aspect imperfectly diagnostic; some circumstances assimilate them to a particular class, or to each other, and others separate them; they are on the confines, but not actually within, the pale of malignity, occupying a sort of neutral territory, debateable in its relations; and although such instances of doubt and difference most frequently occur in hospitals, where diseases are congregated in the greatest variety and boldest forms, they are also occasionally met with in private practice, and are productive of great anxiety and embarrassment in the minds of patients and their relatives: for it must be obvious to them, that the treatment, correct or incorrect, is founded upon the diagnosis, correct or incorrect; and that if, unfortunately, a wrong view is taken, a very injurious treatment may be adopted, or the opportunity lost, which a just view would possibly have led to, of rescuing a patient from destruction.

“ There are numberless examples of faulty diagnosis in the practice of the most reputed surgeons, and this has been as often proved by the decision of the patient, as by that of a consultation. Influenced by hope or fear, the former has clung to the chance of life held out by an unadvised operation, from which no relief was expected, or resisted its performance, although urged on all hands to embrace it, as the last resource in his extremity, and has survived and recovered. So a charlatan has not seldom carried off the credit of a cure, speculating boldly on the doubts of the honest practitioner, and the credulous confidence of the sinking patient. A register of “ errors of diagnosis,” faithfully recorded, would be



a source of curious, and not unprofitable information. But the discriminative faculty being the touchstone of scientific and practical skill, upon which every individual aware of its value by implication and in effect, especially plumes himself, the pride natural to man interposes an obstacle, which only a single and intense preference of truth to all other considerations can effectually overcome.

"It cannot have escaped notice, that the addition of an authentic article to our pathological stock, whether of morbid anatomy or morbid function, nay, the revival to recollection of a neglected disease, by a fresh and piquant description, and a new name, have a marked tendency to multiply such examples; so that the wonder is, how such diseases could have lain so long concealed, or escaped description, even to the insinuation of a doubt, whether, indeed, they are not new forms of disease. Such is the propensity of men's minds, however to be explained, to seize upon generalities, and to adopt novelties that impress them with the force of truth, that insensibly they become occupied and almost monopolized by the contemplation of them, and hastily transfer to the new denomination the mere semblances of the original specimens. Thus all anomalous tumours were at one time accounted malignant, after Mr. Hey and Mr. Burns had described the hæmatoid and fungoid species, and similar absurd universalities have prevailed about hypertrophy and ramollissement, since they were demonstrated as occasional consequences of inflammatory action in certain textures. This is an evil which exposes and corrects itself, but to which, if it did not, slowness and caution, and prejudice and scepticism are, fortunately, all so opposed, as to prevent its extensively mischievous operation. It would be easy to exemplify this observation in the treatment, especially pharmaceutic, as well as the diagnosis of disease, but this would here be out of place.

"In pronouncing the character of doubtful disease, I would recommend to let the mind lean to the opinion of innocence, unless the proofs of malignancy are too palpable to be controverted. Such a disposition exposes us least to the hazard of a premature and erroneous judgment, and affords the patient the only chance of retrieving his desperate circumstances—it has sometimes preserved him. The triumphs of disease should be wrung from us, not conceded in despair; and the hope be kept alive, and by all means cherished, that at some, perhaps not distant, day we may discover, among the novelties of our augmenting pharmacopœia, or the effects of a peculiar regimen and surgical treatment combined, some mode of mitigating, if not of paralyzing, the morbid action, at the same time sustaining the nourishment and constitutional power, and thus altering the diathesis in these dreadful diseases, hitherto the stumbling block of the profession, and the curse of humanity."—pp. 343-346.

*“Observations on the Medical and Surgical Agency of the Air-Pump.* By SIR JAMES MURRAY, M.D.” &c.—Dublin: Hodges and Smith.—In this brochure the author has condensed his views with respect to the remedial powers of the air-pump, whether used as a direct compressor or as an exhausting agent. He suggests many important applications of the principle, and has recorded several cases in which the beneficial effects of his treatment were obtained. In the last number of this Journal we alluded to the question of his claims to priority in the treatment of strangulated hernia by the exhausting pump, and are happy to find that they are fully substantiated in the present essay. Among other applications of this mode of treatment, we may allude to Sir J. Murray’s employment of the suction pump to the breast in amenorrhœa, an important addition to the mode by sinapisms, first proposed in this Journal by Dr. Paterson of Rathkeale.

*“Outlines of Human Pathology.* By HERBERT MAYO, F.R.S.”—London: Renshaw.—Part II.—In this second part of Mr. Mayo’s work, he treats of diseases of the digestive, respiratory, circulating, and genito-urinary system. Of course, in a volume of not three hundred and fifty pages, these subjects must be handled in a very succinct manner. In our opinion it is anything but conducive to the beauty of medical science thus to condense it. Always opposed to tight lacing, whether we consider the health of viscera, or the description of their diseases, we have held that perfection could not be shut within so small a ring as the fashionable stays on the one hand or a thin octavo like the present, on the other. But we must not forget that these are “*outlines*,” and feel happy in recording our opinion that those parts in which Mr. Mayo’s own observations and researches are introduced, are worthy of the author of the admirable *Elements of Physiology*.

*“Lectures on the Nervous System, and its Diseases.* By MARSHALL HALL, M.D.F.R.S.” &c. London: Sherwood, &c.—We cannot better explain the nature of this volume, than by giving the summary of the distinguished author’s views in his own words.

“I think it proper, in order to prevent any misapprehension relative to the claims of this little volume, and of the inquiry of which it is the sketch, briefly to state what are the principal original views which it sets forth.

“The *first* of these is that of a source of muscular action, *equally distinct* from voluntary motion, and from motion resulting from the irritability of the muscular fibre.

"The *second* is that of a series of incident *excitor nerves*, and of reflex *motor nerves*, which, with the *true spinal marrow* as their centre or axis, constitute the *true spinal system*, as distinguished from the *cerebral*, through which that muscular action is excited.

"The *third* is that of the dependence of the *ingestion* and *egestion* of air and of food, and of the action of the *orifices* and *sphincters* of the body, upon this system.

"No physiologist has observed that the action of the *larynx* and *pharynx*, in *deglutition* and *vomiting*, and in *respiration*, and that of the *sphincters*, continually, depends upon the *spinal marrow* and certain *excitor* and *motor nerves*.

"The eye-lids close when the eye-lash is touched, through the same agency of *excitor* and *motor nerves*, and of the *spinal marrow*.

"Respiration has been shewn to depend upon the medulla oblongata. But this part of the *spinal marrow* has been erroneously supposed to be the *source* and *primum mobile* of this function; whereas, I believe I have ascertained that the pneumogastric is that *primum mobile*, as the principal *excitor nerve* of the respiration.

"The action of the ejaculatores obviously depends upon the same *excito-motory*, or *true spinal system*.

"The *fourth* of these views is that of the true spinal system as the *exclusive seat* of *convulsive diseases*.

"The *fifth*, that of the same system as the seat of action of certain *causes of disease*, and of certain *remedial agents*.

"Legallois and Mr. Mayo have shewn that distinct portions of the spinal marrow have distinct functions; but these functions have been confounded with *sensation* and with *voluntary*, or *instinctive motion*, and have remained both *unexplained*, and *without any application to physiology or pathology*."—pp. vii. viii.

This work, though possessing considerable merit, is in itself so much of an analysis, that it is difficult to give any detailed examination of it. But in truth the nervous system is not yet sufficiently understood, to enable us to found any system of physiology, or even any therapeutical method on the theory of the separate functions of its apparently distinct parts. We hope to return to the work at a future period.

"*Lectures on Subjects connected with Clinical Medicine.*" By P. M. LATHAM, M.D., &c. &c.—London, Longman and Co. pp. 332.—The work now before us is deserving of a far more extensive analysis than our limits will permit. In the present time, when so much of careless or dishonest writing comes before the eye of a reviewer, it is refreshing to meet a work like this, every page of which shews that the mind of its author is indeed of an high order.

Dr. Latham wishes to work a real reform in medicine, and



by the only means which that can be obtained, namely, the elevation of the mind of the future practitioner, and the teaching him to consider medicine not as a trade but as a profession, and the most noble of professions.

Although not formally separated by the author, the work may be divided into two very different parts. The first containing important considerations on education, the mode of medical study, and general pathology; and the second being devoted to symptomatology. Of the latter, a large portion is taken up with a succinct account of the most obvious physical indications of pulmonary disease.

After pointing out the errors of that system which demands, or seems to demand, an acquaintance with a great variety of subjects, as necessary in forming a physician, Dr. Latham remarks:

“With all becoming deference to those who so loudly trumpet forth the praises of knowledge, and fright the trembling student with a portentous array of the wonderful things he has to learn, I would venture to crave some little regard for what is not so much as named by them, but what is preeminently more important than knowledge itself: I mean wisdom, as a thing distinct from knowledge, but not opposed to it; requiring, indeed, knowledge to work upon, but taking care to proportion that knowledge to the real end which itself (wisdom) has in view. I marvel that this wisdom is not enumerated among the ingredients of the physician’s character, since it is conspicuously the chief of all, and was unquestionably that which gained for the two eminent men whom we have mentioned the praise which they justly merited from mankind.

“It is however, in its very nature, a thing too lofty for me to venture to describe. You shall learn what it is from one who well understood how distinct it was from mere knowledge, and who was himself endowed with it in a measure beyond ordinary mortals.

“‘Wisdom,’ says Robert Hall, ‘is to be distinguished from knowledge, to which it bears an affinity, but ought not to be confounded with it. Though wisdom necessarily presupposes knowledge, and it is impossible to exercise it in things of which we are ignorant, yet it ought to be something more practical and rather more comprehensive: it ever bears a relation to the end; and, in proportion as it is more perfect, to the highest and the last end the agent can be supposed to have in view. It first judges of the end fittest to be pursued, and next determines what are the most fitting and suitable means of accomplishing it; it being the province of wisdom to preside, it sits as umpire in every difficulty, and so gives the final direction and control to all the powers of our nature. Hence it is entitled to be considered as the top and summit of perfection. It belongs to wisdom to determine when to act, and when to cease; when to reveal, and when to conceal a matter; when to speak, and when to keep silence;



when to give and when to receive ; in short to regulate the measure of all things, as well as to determine the end and provide the means of obtaining the end pursued in every deliberate course of action.'"

"More simply, but with equal majesty and truth, spoke another congenial mind upon the same high subject:—

" 'Knowledge and wisdom, far from being one,  
Have oft-times no connexion. Knowledge dwells  
In heads replete with thoughts of other men ;  
Wisdom in minds attentive to their own.  
Knowledge, a rude unprofitable mass,  
The mere materials with which wisdom builds,  
Till smooth'd, and squared, and fitted to its place,  
Does but encumber whom it seems to enrich.  
Knowledge is proud, that he has learned so much ;  
Wisdom is humble, that he knows no more.'—*Cowper*.

"These words might have been spoken by an oracle, they are so suitable both to learners and teachers of our profession at the present day. We, of all men, ought to seek knowledge, not for the sake of being *knowing*, but for the sake of being wise ; and those who are our masters, and are to tell us what we ought to learn, should not make a pompous announcement of all the wonderful things with which medicine may hold a possible alliance, but should prudently select and measure the knowledge required with a view to the general capacity, and conformably to its end.

"In laying down any scheme of education, you must take care to make it suitable to the majority of those who are to be educated. There may be circumstances in their condition and objects rendering that education, which is the best in itself, not the best for them. Such circumstances belong, in an especial degree, to our profession. Very few enter it who are not to live by it: very few who are not required to exercise its duties *early*, from the necessity they are under of beginning as soon as possible to support themselves. So that the majority cannot wait to be made philosophers before they become practitioners."—pp. 18-21.

This is no common writing ; but the work abounds with passages still more important, and which display the mind of the author in even a higher point of view. The following exhortation to steadfast, enthusiastic clinical study should be engraven on the mind of every student whose ambition, or whose abstract love of knowledge, is above the ordinary level. And even in the lower order of mind, or in that whose generous aspirations have been checked by a bad system and bad teaching, we would anticipate that the smouldering spark might be relighted, and the chains broken, and an abiding sense of the value and dignity of that pursuit which most closely links man with his creator, be engendered, to fructify in the increasing light and warmth of science and of fame.

“ Now, lectures on the theory and practice of medicine profess to teach physic systematically, and to give an entire view of the subject down to the present day. They are a kind of medical jorcery, in which fevers and inflammations, exanthemata and hæmorrhages, profluvia and cachexies, are made to perform their circumvolutions with wonderful order and propriety. And, as the youthful astronomer needs to contemplate some mimic show of the heavens before he can profitably scan the heavens themselves, so the youthful physician needs (it is thought) some orderly representation of the whole to make him know and admire the extent and nobleness of his art, before he begins to deal with its important realities.

“ Beware, however, of mistaking the intention of these systematic lectures on medicine, or of allowing your minds to rest in them for purposes which they are not intended to serve. They are introductory, and only introductory, to knowledge which is to be acquired by other means. These means are necessary and indispensable, so absolutely indispensable, that without them there can be no knowledge. The knowledge in question is the acquaintance with diseases in all their forms, and the acquaintance with remedies in all their kinds, and all their modes of application; and the means in question are intercourse, continual intercourse, with the human beings who are the subject of diseases. Diseases are not abstractions; they are modes of acting, different from the natural and healthy modes—modes of disorganizing, modes of suffering, and modes of dying; and there must be a living, moving, sentient body for all this.

“ This body must be your study, and your continual care—your active, willing, earnest care. Nothing must make you shrink from it. In its weakness and infirmities, in the dishonours of its corruption, you must still value it—still stay by it—to mark its hunger and thirst, its sleeping and waking, its heat and its cold; to hear its complaints, to register its groans.

“ And is it possible to feel an interest in all this? Ay, indeed is it: a greater, far greater interest, than ever painter or sculptor took in the form and beauties of its health.

“ Whence comes this interest? At first, perhaps, it seldom comes naturally: a mere sense of duty must engender it; and still, for a while, a mere sense of duty must keep it alive. Presently, the quick, curious, restless spirit of science enlivens it; and then it becomes an excitement, and then a pleasure, and then the deliberate choice of the mind.

“ When the interest of attending the sick has reached this point, there arises from it, or has already arisen, a ready discernment of diseases, and a skill in the use of remedies. And the skill may exalt the interest, and the interest may improve the skill, until, in process of time, experience forms the consummate practitioner.

“ But does the interest of attending the sick necessarily stop here? The question may seem strange. If it has led to the readiest discernment and the highest skill, and formed the consummate practitioner, why need it go further?

“But what if humanity shall warm it, then this interest, this excitement, this intellectual pleasure, is exalted into a principle, and invested with a moral motive, and passes into the heart. What if it be carried still further? What if religion should animate it? Why, then happy indeed is that man whose mind, whose moral nature, and whose spiritual being are all harmoniously engaged in the daily business of his life; with whom the same act has become his own happiness, a dispensation of mercy to his fellow-creatures, and a worship of God.

“Such a man any of you may be; but you must begin by learning to stand by the sick bed, and make it your delight.”—pp. 36-38.

In the portion of the work devoted to the doctrine of symptoms, the student will find important information conveyed in the simplest and yet most forcible manner. And in taking leave of Dr. Latham we can only say, that although not surprized, we have been delighted, and that in our opinion his lectures should be used as a text book by every student of medicine.

“*A Treatise on the Chemical, Medicinal, and Physiological Properties of Creozote; illustrated by experiments on the lower animals; with some considerations on the Embalment of the Egyptians: being the Harveian Prize Dissertation for 1836.* By JOHN ROSE CORMAC.”—Edinburgh, 1836, pp. 154. —We much doubt whether creozote will ever be extensively employed in medicine: the difficulty of production, the nauseous odour and taste, and above all, the uncertainty of its operation, presenting such serious obstacles to its use. Still, however, from its great antiseptic power, it must be esteemed a highly interesting substance, and therefore we received with pleasure a publication in which the author professes that he “has attempted to collect all the information upon the subject which has been published in the Foreign and British Journals, and at the same time to state such farther details and observations as were known to the author;” nor has the perusal diminished our gratification.

The work is divided into two parts. The first contains a brief but comprehensive review of the physical and chemical properties of eupoine, paraffine, creozote,\* as well as of some other substances long celebrated for antiseptic virtues; the author endeavouring, and certainly with considerable success, to prove that they enjoy this power in consequence of containing creozote.

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\* Bodies discovered in 1830 by Reichenbach in oil of tar.—See Dublin Medical Journal, vol. iv, p. 411.

The second part embraces the physiological and medicinal action of creozote, and the history of those substances whose medicinal properties seem to depend on its presence. Thus by a connected chain of reasoning the activity of these substances is shown to depend on contained creozote, and from their well-known medical effects, those of creozote are inferred; its physiological action, however, is not proved by analogy alone, for several interesting experiments performed by the author on animals, are related, by which he has ascertained, that when introduced into the veins or stomach in sufficiently large doses, "its first deleterious action is a sedative effect on the heart, almost instantly paralyzing the vital energies of that organ; in some instances the respiration is hurried and sonorous, one or two convulsive fits in general preceding death." The heart was found gorged with blood, perfectly quiescent, and insensible to stimuli; this seemed, however, to arise from over-distention, for when blood was suddenly abstracted from the jugular vein, and so the heart partially emptied, its action was restored. It is singular that in no case was the blood found coagulated after death, though if creozote be mingled with blood extracted from the body, it produces coagulation of its albumen.

It should not be forgotten in the administration of creozote, that, like prussic acid,\* (which it resembles strongly in many of its medical properties and uses,) there is a limit to its dose which cannot be exceeded by even one drop without risk, though this maximum dose differs in different individuals and different animals. We would gladly glance at the diseases in which this substance has been tried, and the results of these trials, as also at some interesting observations on the mode of embalmment practised by the Egyptians, but we have already exceeded our limits, and must therefore refer the curious on these subjects to the book itself, which is evidently written by a man of great observation and research.

P. H.

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\* Dublin Medical Journal, vol. vii. p. 314.



## SCIENTIFIC INTELLIGENCE.

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*Memoir on Thymic Asthma.* By Drs. Kopp and Hirsch of Königsberg.—The Germans describe under the name thymic asthma, or Kopp's asthma, an affection peculiar to childhood, characterized by fits of suffocation, during which respiration appears suspended, and which return periodically, especially on awaking or attempting to swallow, or when the child utters cries. The cause, as the name indicates, consists in too great a development of the thymus gland.

The first observations made by Dr. Kopp regarding this disease, were in three consecutive cases; the patients were the seventh, eighth, and ninth children of a delicate mother, who had previously borne six healthy children. The three patients alluded to died at the respective periods of seven months, ten months, and twenty-one weeks. The symptoms, equally characteristic in all of them, were suffocation, swelling of the face, spasmodic motions of the hands and feet, and thrusting out of the tongue between the teeth. The paroxysms became from day to day more aggravated, and particularly when awakened from sleep, the little patient uttered a very peculiar plaintive cry; during the fit the pulse was irregular and intermittent. In one of the cases the sound of the heart was inaudible.

The most prominent feature in the post mortem examinations was the appearance of the thymus gland; in one case it might have been mistaken for the lung, it was so thick and hypertrophied; it extended from the thyroid gland to the diaphragm, was two inches wide, weighing more than an ounce, and pressing strongly against the trachea; on cutting into it there flowed from out its whole tissue a quantity of milky fluid. In another post mortem the thymus was found occupying the whole anterior part of the chest, and forming with the superior part of the thorax, adhesions that could be removed only by the scalpel, it was united to the thyroid gland by thick cellular tissue. By the thymus covering the whole heart, the sounds of that organ had been intercepted during life. The lobes of the gland were elevated and enlarged, its parenchyma presented no trace either of suppuration or tubercles, or any other degeneration; on pressure being applied there came away an abundant milky humour, like the spermatic liquor in consistence. The lungs were dark red, engorged with blood as in asphyxia.

In the history of these three observations we find as constant phenomena: 1st, A suspension of respiration coming on periodically, accompanied by an acute and plaintive cry, and with signs of anxiety. 2nd, The return of these fits of asthma, particularly at the moment of awaking, or when the little patients uttered cries, or made attempts at deglutition. 3rd, The habitual position of the tongue, which was stretched out between the lips. 4th, On examination after death the excessive development of the thymus gland.

Dr. Kopp states that this disease occurs more frequently than has been supposed: he considers that it has often been confounded with the asphyxia, or asthma, described by Millar. In many children it is observed, when they cry, that the respiration is suspended sometimes so long as to cause suffocation, a phenomenon which usually persists to the age of four or five years, and which the author attributes for the most part to hypertrophy of the thymus.

In Rust's Magazine for 1825, there is an observation by Professor Eck, under the title of "Millar's asthma," which Dr. Kopp looks on a description of the disease in question. In fact the progress was the same, the characters identical, the same apyrexia, paroxysms alternately strong and weak, with intervals when the patient was completely free from them; death occurring during a fit, and in fine the lungs encroached on by an enlarged thymus gland. The same Journal (1826) gives another observation by Dr. De Velsen of Clives, in which the symptoms and post mortem results were all similar to our detail.

Dr. Kopp relates five observations on thymic asthma, from Drs. Rullmann, of Weisbaden, Tritschler of Kannstadt, and Ulrich of Coblenz. The French reviewer of the work considers that two of these latter observations do not properly belong to thymic asthma. For in one, the subject died sixty hours after birth, and in the other the subject was three years old when the disease set in, and consisted in a cartilaginous alteration, or rather hypertrophy of the thymus gland. In the three other cases the disease occurred in male children, a circumstance to which we shall return. The subjects of two of Dr. Rullmann's observations were brothers. In one the disease set in when the child was about three weeks old, the fits and other symptoms were identical with those already described; at the end of twenty-one months after the disease had manifested in its progress various remissions, and exacerbations, the child was one day stooping to pick up something, when he was suddenly seized with vertigo, throwing himself back into his father's arms: his face became blue, the extremities stiffened, a general paleness covered the whole body, the fæces and urine passed involuntarily, and the patient died suffocated.

On examination after death, the thymus was found reaching from the superior edge of the sternum to the diaphragm, not only

covering the windpipe and pericardium, but also the whole anterior part of the lungs, it was rather firm and somewhat granular in appearance, and was of a pale red colour; there was no pus, no inflammation, nor hardness, and there did not exude any of that milky liquor as observed in the former cases.

In another case the attacks set in at the third month, occurring mostly at the moment of awaking, returning only every six or eight days, and lasting but about three minutes. Towards the sixth month, the period of dentition, the attacks became aggravated, but on the appearance of the teeth they became milder, but soon after returned with increased violence. In this case it was observed that the tongue did not protrude. M. Rullmann had treated these cases at first by antispasmodics and derivatives, but when he became more certain of the true pathological condition in this disease, he considered the following treatment more rational: Plummer's powder with cicuta, and a small blister to the sternum, low diet, with residence in the country, and removal of all causes of uneasiness that might provoke the child to cry. Calomel purgatives, occasionally administered, were always of singular service. On pursuing this treatment for two months, the fits became less frequent, and at the end of the second year the cure was complete. At the age of four years the boy had whooping-cough without being attended by any recurrence of the fits.

Dr. Tritschler's patient was aged seven months, when he was first attacked with the former described symptoms, the fits returning during a period of six weeks, every time the boy was laid on his back. The treatment at first consisted in antispasmodics and derivatives, without benefit, at a later period calomel and digitalis were administered, and under the influence of these medicines the fits became less and less frequent, and at length ceased entirely at the end of nine days.

Though the symptoms in this last case were identical with those observed in the cases of which the post mortem examinations have been detailed, it is yet hard to conceive how so great a diminution of volume of the thymus as is inferred could have taken place in the short space of nine days.

In the work of Dr. Kopp, besides the facts so highly deserving of attention, we find an analysis of all the works that have appeared on the organic affections and changes of the thymus gland. After Kopp come Caspari and Pagenstecher, who do not consider the hypertrophy of the thymus as a cause of asthma; Conradi, Schneider, Brück, Pitschaft, Wanderlich, Brunn, Kornmaul, Haugsted, Becker, and of late Dr. Hirsch of Königsberg, whose excellent little work we shall now analyze.

In the first case that presented itself to Dr. Hirsch, he was not acquainted with the result of Kopp's researches, and consequently the true character of the disease escaped notice. The subject was a little girl, of apparently a good constitution. When five months old it was observed that the respiration appeared wholly suspended



at the moment of awaking, like a person suddenly deprived of air; this state lasted only a few minutes, when the child resumed all her gaiety. She continued in this way occasionally until ten months old, when having the whooping cough she awoke one morning with a slight cough, her mother ran to the bed, but the child had expired without convulsion, or any agony: there was no autopsy.

The two next cases he met with were in children of from five to ten months. The two first died asphyxiated, one after eight months' illness, the other after three; in the latter the usual symptoms were complicated with epileptic phenomena. The thymus of the first of these children occupied all the anterior mediastinum, and was composed of two large lobes, besides several small ones. An appendix of the gland arose about its middle, and surrounded the common jugular vein, the glandular parenchyma was firm, and it weighed nine drachms and a half.

The thymus of the second child was not so thick, nor of so close a texture; it extended from the thyroid gland, beyond the pericardium, which it covered; it had contracted adhesions with the arteria innominata and right carotid, and its weight was six drachms six grains.

In the two following cases the termination was favourable.

C. N. was weaned at nine months, and soon after an attack of bronchitis fits of dyspnoea set in, which soon became alarmingly aggravated, and returned every hour; they were announced by a small sharp cry, or by a train of short feeble bleating *expirations*, these were followed by six or eight strong sibilant *inspirations*, similar to those observed in croup. The child threw himself backwards and became pale, the paroxysm lasted about one minute, he then remained quiet and cast down for some moments, and then resumed his habitual good humour. M. Hirsch applied leeches and a blister, and gave a purgative of calomel and rhubarb, which was vomited. He afterwards gave the aqua lauro-cerasi, three drops three times a day, increasing the dose one drop every two days; the sixteenth of a grain of musk three times a day, and every morning a small quantity of the watery tincture of rhubarb: these medicines, together with inhaling pure and temperate air, produced such an improvement, that at the end of three weeks the attacks were reduced to one in twenty-four hours, and even that was by no means violent. The following month dentition threatened a recurrence of the attacks, but the predisposition was successfully combated by leeches, purgatives, and frictions of tartar emetic ointment. The child did well afterwards.

R. M. at the age of 10 months, after having been weaned, began to be affected with asthma; the respiration was suspended three or four times a day, whenever he played or cried, but never on awaking. Three weeks after there came on an aggravated attack, which left no further doubt of the existence of thymic asthma. The child had a few minutes before the attack been amusing himself in play, when suddenly he fell backwards, the face be-



same livid; foam burst from the mouth, the hands became clenched, the limbs convulsively agitated, respiration suspended. Some minutes after the child rallied, fell asleep, and on awaking there was a repetition of the symptoms. Recourse was then had to leeches applied to the sternum, and a tartar emetic plaster to the chest. Calomel and rhubarb were also administered. This treatment was followed for a month, at the end of which time the spasms diminished, and the suspension of respiration which used to occur four times a day, returned but twice a day, and at length ceased entirely. In a month more his health was completely re-established.

Having given those cases, let us now look to the general features of the disease. Thymic asthma attacks children from the age of three weeks to eighteen months, but more particularly between the fourth and tenth months. It is characterized by spasms of the chest, and great suffering, returning in fits; the respiration fails, and there is observed only an incomplete, short, acute, and hissing inspiration; the air finds a difficulty in passing through the glottis, which is constricted. The sound accompanying the inspirations is like the sonorous sound in hooping cough, but is finer, more acute, and the note is higher. The spasm of the neck resembles that of hysterical females, or those affected with disease of the heart. In some children there are five or six inspirations, at first hissing, afterwards deeper and more painful, alternating with an expiration scarcely perceivable, the noise of which is like the sound in croup. In violent fits the respiration is completely suspended. The acute cry in inspiration is heard either in the beginning of the fit, when it is soon smothered by the respiration becoming suspended, or it is heard towards the end of the fit, when the patient begins to take breath. This cry is a constant and pathognomonic sign of the disease. The other phenomena that supervene are the natural effects of the want of respiration. The child bends the trunk backwards, with violence, or when the fit is intense, falls backwards, the countenance indicating painful anxiety, the face at first is blue, afterwards pale, the nostrils are expanded, the eyes fixed, the hands cold with the thumbs clenched. There are occasionally involuntary excretions: the fit lasts from half a minute to three minutes, after which the patient cries and is ill at ease for some time, but soon recovers his habitual cheerfulness. Children of delicate constitutions, or after violent fits, remain a longer time pale, cast down, and disposed to sleep. In the intervals they appear to enjoy perfect health, and present no symptom to distinguish them from children of the best constitution. Indeed Kopp states, that in the intermissions the beating of the heart cannot be distinctly perceived, and that the tongue is always a little protruded; but the latter sign is not always constant, and there are many perfectly healthy children in whom it is sometimes difficult to hear the sounds of the heart. The fits of suffocation set in more particularly when the child awakes, is vexed, or attempts to swallow with avidity, and in general in all those motions in which the organs of respiration are interested. At first they are of rare

occurrence, becoming afterwards more frequent, and more easily induced, until they reappear at length ten or twenty times a day. In the last named state, death often takes place during a fit which seizes on the child at the moment that he is laughing joyously; but very often the disease passes to a second period characterized by general epileptic convulsions; the epileptic and asthmatic attacks do not always coincide, but rather alternate; Caspari has observed that the muscles of the hand, and the adductors of the thumbs, are convulsively contracted even during the intermissions. Death in this stage of the disease commonly occurs in a fit of apoplectic suffocation, and often is quite instantaneous, without the slightest precursory symptom.

On examination after death, the first signs that strike one are those of asphyxia. The livid appearance of the skin, stasis of blood in the brain and lungs, flaccidity of the heart, and the foramen ovale very often not closed; but the most remarkable phenomenon is the hypertrophy of the thymus. The development of this gland takes place both in length and breadth, but most of all in thickness. When the thymus is very much thickened, the lungs are compressed and pushed aside; these organs in some cases contract adhesions with the large venous and arterial trunks of the chest and neck. The tissue of the gland is either in a normal state, or, which is more frequent, is found denser, redder, more fleshy, but without any trace of inflammation, induration, tuberculization, or any other degeneracy. On cutting into it there occasionally exudes a milky liquor.

Dr. Kornmaul speaks of a thymus weighing fourteen drachms; F. Plater of one weighing half an ounce; Dr. Hirsch of a gland weighing nine and a half drachms; Dr. Van Velsen of one weighing nine drachms: the weight in general varies from six to seven drachms.

Dr. Hirsch very reasonably considers the only truly thymic asthma, to be that depending on a hypertrophy of the gland, and distinguishes from it those cases where the new born child dies of suffocation, from the congenital development of the gland not allowing respiration: and also those cases where the thymus presents a tuberculous, schirrous, fatty, or ulcerated alteration, &c. &c.

All these changes have quite a distinct pathological character, and do not belong, like simple hypertrophy, exclusively to childhood. Thus limited, thymic asthma constitutes a disease peculiar to childhood, presenting peculiar symptoms, progress, and etiology, and requiring peculiar treatment. The duration of this affection varies from three weeks to twenty months, sometimes several months pass without the recurrence of spasms, until they are brought on by some intervening disease; in the early stages the cure is possible.

Among the predisposing causes of thymic asthma are ranged, first, scrofulous habit; second, weakness of constitution; third, pulmonary affections, such as phthisis; fourth, affections of the womb, of the mother; fifth, hereditary disposition, and that more particularly in the male sex. All diseases of the bronchial system favour

the development of this disease. Teething and certain affections of the bowels and mesenteric glands, are also predisposing causes.

Thymic asthma seems not to have been entirely unknown to other physicians; thus Dr. Marsh\* relates a series of observations of a disease which he describes under the name of spasm of the glottis, and which is evidently the same as Kopp's asthma; but the Irish physician appears not to have made any *post mortem* examination, and makes no mention of the disease of the thymus. Alexander Hood† found enlarged thymus glands in seven children, and two adults who had died of asthma. Richa,‡ Verdrics,§ and Hert,|| who wrote near a century ago, recognized hypertrophy of the thymus as a cause of asthma in children. P. Frank¶ says, that in puerile asthma the bronchial glands, and particularly the thymus, have been found tumified in a remarkable manner. However, to Dr. Kopp belongs the honour of having first given a certain history and diagnosis of this disease, and of having published the first treatise respecting it *ex professo*.

*Kopp's asthma* is distinguished from *Millar's asthma*, by the greater number and shorter duration of the fits, as well as by its progress being more chronic.

In chronic hydrocephalus children mostly awake starting, hold their breath, and fall into a state analogous to the fit; in the thymic asthma the same accidents occur when they cough or cry. It will be easy to diagnosticate the first of these diseases by the decided symptoms that are peculiar to it; yet there seems to exist a relation between these two diseases. M. Hirsch recommends an examination of the thymus in autopsies of children who have died of acute hydrocephalus.

But there is one state with which thymic asthma might be easily confounded; very often with irritable children who have been much indulged, the respiration is suspended, and many of the phenomena of thymic asthma appear at a moment that they may be crying under the influence of bad temper. But the symptoms in such a child are distinguishable from those of a child affected with thymic asthma, for the stopping of the breath will occur with the former only in a moment of irritation, and never on awaking, nor in swallowing, as happens in the true asthmatic fits.

From these considerations Dr. Hirsch defines Kopp's asthma to be a disease peculiar to infancy, characterized by tonic spasm of the lungs, larynx, and glottis, returning in fits extending at a later period to the cerebro-spinal nervous system, under the form of epileptic convulsions, and causing death by suffocation by apoplexy,

\* Dublin Hospital Reports and communications.

† Edinburgh Journal of Medical Science.

‡ Constitutiones Epidemicæ Taurinenses, 1728.

§ Dissertatio de Asthmate Puerorum. Giess, 1726.

|| Ibid. Göttinger gelehrte Ang. 1832.

¶ Epitom 6. 2. p. 175.



or by asphyxia. The cause of this disease consists in a hypertrophied thymus nowise altered in its substance, which by its weight and volume presses on the heart, the lungs, the large arterial and venous vessels, and prevents the free exercise of their functions. The prognostic is almost always fatal; however when the subject is robust, and but little disposed to catarrhal affections, when the case is recent, the paroxysms weak and remote, and that it is not complicated with epileptic convulsions, some hope may be entertained. The indications are various.

1st, *During the fit.* The only thing to be done is to put the child standing up, or to incline the body forwards, to strike him lightly on the back, and to throw a little cold water in his face; any other assistance would be useless.

2nd, *To moderate the violence of the spasms.* For this purpose aq. laurocerasi in small and graduated doses, musk, assafoetida, zinc, and according to Paganstecher, the cyanuret of zinc, may be successfully employed.

3rd, *To avoid congestions of the heart or lungs, and to prevent increased activity of these organs.* A very low diet, abundant and often-repeated local bleedings. Issues on the chest, frequent energetic purgatives, with aqua laurocerasi, will succeed in this object, the evacuating, and antiphlogistic method is best employed with robust children. The antispasmodic treatment should be had recourse to with children of delicate constitution; but according to the exigency of the case, both may be combined with the best effect.

4th, *To combat directly the cause of the disease.* By antiphlogistic, evacuant, and derivative means, the development of the thymus may be arrested. For the purpose of diminishing the growth of the gland, several remedies have been proposed, viz. mercurials, antimonial, cicuta, digitalis, animal charcoal, and iodine. These means sometimes succeed, but their success is by no means constant; however, by uniting them with other agents, and particularly by enforcing a strict regimen, we may sometimes succeed in curing a disease which at all times presents alarming characters, and the extreme gravity of which deserves the attention of all practical physicians.—*Gazette Medicale*, January, 1836.

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*Pneumo-thorax treated with Opiates.*—The subject of this case was a girl fifteen years of age, treated in the Hospital des Enfants Malades. The pain in the left side had come on suddenly, and soon acquired its maximum of severity. The sonorous, tympanitic sound, and the dilatation of this side of the chest, joined to the metallic tingling, and complete absence of respiratory murmur, left no doubt as to the existence of pneumo-thorax. From the history of the case there was reason to suppose, that there had been perforation of the pleura, communicating with a tuberculous cavity. The hopelessness of the prognosis was painful, as the patient was full of strength and spirits, at the time of the attack; the right lung was still entirely permeable, and every



thing led to suppose that the lesions of the left lung were circumscribed. She was bled from the arm to relieve the dyspnœa, as well as the inflammation of the pleura, which was the cause of it, sinapisms were applied to the lower extremities, and to the affected side, as derivatives. The relief procured by these means was but momentary, and the disease was proceeding to a fatal and speedy termination.

As the patient suffered from loss of sleep and from pain, she was ordered an opiate, (half an ounce of syrup of diacadium, equal to one grain of opium,) which procured rest and great relief; this slight improvement recalled the success obtained by Drs. Graves and Stokes, of Dublin, from large doses of opium in the treatment of peritonitis with perforation of the intestine. In consequence the dose of syrup of diacadium was increased to two ounces, equivalent to four grains of opium. Under the influence of this treatment the pain diminished, and the patient was enabled to lie on her side. She was directed to lie on the diseased side for the purpose of promoting adhesions of the pleural surfaces. Certainly the chest, under the circumstances, is less favourable for adhesions than the abdomen, as a greater or less quantity of gas was interposed between the lung and the parietes of the thorax. Nevertheless the opiate treatment was persevered in, and six weeks after the occurrence of the disease, the metallic tingling had disappeared. The left side of the thorax had sunk in, a portion of the affected lung had become permeable to air, the general state of the patient was so far improved, as to allow her to make a long journey. Four months have elapsed since the setting in of the pneumo-thorax, the patient is still doing well.—*Ditto*, September, 1835.

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*Malformation of the Œsophagus.*—There has been lately published by M. Padiou, in the *Bulletin of the Anatomical Society of Paris*, and thence copied into the *Lancet* of the 9th of January, as a *unique* case of malformation of the œsophagus, a peculiar variety of monstrosity, of which an exactly analogous instance, illustrated by drawings of the parts, has been already described by Mr. Houston in the fifth volume of the *Dublin Hospital Reports*. In both instances the pharynx, or rather the œsophagus, near its origin from that part was closed up so as to form a cul de sac, and the part of the œsophagus next following, instead of being a blind sac, as is usual in such malformations, took origin from the back part of the trachea, by a wide opening through which the mucous membrane of the two tubes was perfectly continuous. M. Padiou's case was a female, that of Dr. Houston a male. The former lived to the eighth day, the latter to the seventh; both, of course, without food. It is proper that this latter fact should be here mentioned, in reference to Dr. Houston's case, as a mistake has been fallen into by the printer, in stating that the death occurred on the "following" day.

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*Compound Dislocation of the Clavicle (backwards).*—Joseph

Hawkins, æt. 31, excavator, admitted into George's ward, Sept. 23, 1835, 2 P. M.; a stout healthy-looking person; has been accustomed to drink three or four pots of porter daily, and not unfrequently to get drunk, but he has not used spirits. About three hours since, whilst excavating for the foundation of the Southampton rail-road, about twelve feet in height of earth fell, and drove the sharp end of a pick-axe against his chest. On his admission, a wound existed opposite the sternal extremity of the second rib on the right side; the cellular tissue below the right clavicle on the upper part of the sternum was emphysematous. The clavicle was dislocated backwards at its sternal extremity. When the finger was introduced into the wound, the great pectoral muscle was found to be torn entirely from its clavicular attachment, and the finger could be passed as far outwards as the coracoid process of the scapula, and inwards it followed the clavicle to the trachea, on the right and forepart of which it rested, sunk behind the upper bone of the sternum, so that it slightly affected respiration and deglutition: the interarticular cartilage seemed to remain in its proper place, except a small portion which had been torn off with the bone; the extreme inner end of the clavicle could not however be distinctly felt. No wound of the intercostal muscles, as far as could be ascertained. The pick-axe had probably first passed upwards and outwards, then turned inwards, torn off the pectoralis from its origin, and, having dislocated the clavicle, passed inwards towards the sternum, probably wounding the trachea, and thus causing the emphysema.

He complained of a little pain opposite the middle of the second bone of the sternum, but no fracture could be ascertained, and he had no other pain in the chest. He respired easily, although he complained of difficulty of breathing, accompanied with great desire to cough, and a sensation of pressure on the wind-pipe, which was much increased on elevating the chin and throwing the head back. The shoulders were brought back with straps attached to a back board, and the bone readily resumed its place; the elbow was brought forward and bound to the side. He was placed on a dropsy bed with the shoulders raised.

*Evening.* Difficulty of breathing relieved; but he complains of the pain across his chest, more particularly on taking a deep inspiration. There is no increase of emphysema. Pulse 85 and fuller; tongue dryish and white. R. Mist. Senn. Com.  $\bar{z}$  j. ss stat.

Sept. 24. His bowels have been relieved ten or twelve times by the medicine, and he has had a bad night, the pain in his chest preventing any attempt to sleep. Has rather more difficulty of breathing, which is relieved by lying on his left side; but quite easy at the immediate seat of injury, and the bone keeps well in its place. Pulse 80 and soft.

Sept. 25. Has passed a good night and is much better. Pulse 84 and soft; tongue moist and rather furred; bowels relieved once since last report. He has a little pain across the chest, and slight tenderness over the epigastrium, but no pain in taking a

deep inspiration, although he has a slight cough. Complains of great stiffness at the back of the neck. Mist. Senn. Comp. was given in the evening, which produced three or four stools.

Sept. 26. Going on well; skin cool; tongue clean; pulse tranquil. He complains of slight pain in the right side of the chest, which waked him and set him coughing.—R. Pulv. Ipec. C. gr. v. o. n.

Sept. 28. The bandages having cut his arm-pits, they were readjusted, some strips of soap plaster having been previously applied. In other respects he is doing well.

Oct. 1. Going on well and sitting up in his bed; says he feels quite well, excepting pain at the pit of his stomach, and in the belly, which he refers, and probably truly, to the bruises he has received.

Oct. 3. Going on well; cough much better; still complains of uneasiness about the right side of his chest; fancies himself not quite so well as he should be, in consequence of having made too free with himself yesterday, and has not been able to eat his dinner to-day.

Oct. 15. Has continued going on well, and got up to-day.

Oct. 24. Presented.—*St. Thomas's Hospital Reports.*

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*Creosote.*—Sometime ago a commission had been appointed by the Royal Academy of Medicine of Paris, to inquire into the effects of creosote as a remedy; they have decreed the following, viz. That pure creosote possesses a peculiar action in speedily coagulating pure albumen. That it is an energetic excitant, and should be employed only in dilute form; that it improves the purulent secretion of chronic ulcers, and by its action on their surfaces and edges favours cicatrization; that its immediate contact modifies advantageously the surface of mucous membranes affected with chronic inflammation; that it has been found useful in stopping hæmorrhage from leech bites, or from very small arteries. Also in adontalgia from carious teeth; yet that other remedies have perhaps an equal claim, or better, as the smell of creosote is disagreeable to most persons.

In obstinate chronic diseases of the skin, in cancer, or phthisis pulmonalis, it has no better claim to celebrity, than any of the other remedies that have been spoken of for the cure of these diseases. Diluted with water, it preserves the texture, consistence, and colour of anatomical preparations, and for this reason, as well as its cheapness, is preferable to other means employed for the purpose; besides the smell may be very well borne by anatomists. *Memoires de l'Academie Royale de Medicine*, tom. v. 1836.

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*Lithotriety in very young Children*, by M. Leroy D'Etiolles, M.D. &c.—Five observations on lithotriety, practised on children from three to six years old, are related by M. D'Etiolles; the details are of that



general character that all readers on the subject of lithotrity are conversant with, and present the disagreeable occurrences of fragments of the stone stopping in the urethra, and pieces of steel instruments breaking off and remaining in the bladder, &c. &c. Now, if an instrument break and leave a portion in the bladder, it is a matter of no alleviation to the patient to be informed, that the accident was owing to bad workmanship of the cutler, rather than to want of skill in the operator. The author of the memoir states two points; one, that lithotrity presents less difficulties in adults than in children, the other that lithotomy does succeed in children, while in adolescence there is more danger from the operation than in adults of from twenty to forty years. In denying that lithotrity may be practised on children of such very tender years, he gives the following reasons for his opinion:—"Lithotomy commonly succeeds at this period of life, the cure is rapid, and if the pain be more acute, it is of shorter duration and occurs but once. In lithotrity the recurrence of the operation is a real torture to children; the first sitting may be borne with calmness, but in the second and third, persuasion and menaces are alike ineffectual; violence must be used to hold them, and the extreme agitation and convulsive state that this produces, is always attended with danger. The smallness of the parts also requires the use of small instruments, and such it is almost impossible to obtain of the necessary solidity. The smallness of the instruments too, renders the duration of the operation much longer than in the adult, for the crushing of the stone is performed more slowly, and it behoves, from the smallness of the urethra, that the fragments should be perfectly reduced to powder. If they be not, the fragments that lodge in the urethra, and the operations requisite to dislodge them, are a source of excessive annoyance to the surgeon, to the patient, and his friends. From all these facts I conclude, that lithotrity should not be performed in very young children, unless the stone be very small; and before the operation, the surgeon should inform himself well of the general state of the patient, and the particular state of the bladder and the calculus. Whatever be the age of the patient, disregard to the latter observation should never exist, as it is to such disregard, rather than to the method itself, that failures in lithotrity are often to be attributed.—*Memoires de l'Academie Royale de Medicine*, tom. v. 1836.

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*Double Femoral Vein.*—The following description of an example of double femoral vein, similar to that described by Mr. Macready, in the last number of this Journal, has been communicated to us by Mr. Goodall.—About the middle of the popliteal space, the external saphena vein, which was in this instance much larger than it is usually found, joined the popliteal, this vein consisted of but one trunk, till it arrived at a point about one inch inferior to the opening, through which it and the artery pass from the popliteal to the femoral region, here the popliteal vein divided into two branches, an internal and external; that part of the vein between the place of bifurcation and



the point where the external saphena joined it, was of unusual dimensions. The internal or larger branch corresponded in size and relative situation to the usual distribution of the proper femoral vein. The external branch, in size about that of the internal saphena vein near its termination, held exactly the same relative situation to the artery and surrounding parts, as it did in the case related by Mr. Macready, in the twenty-fourth number of this Journal, except that in his case it crossed the artery twice, whereas in the subject I allude to, it did not cross the artery till it reached the middle of Scarpa's space, and here, for the first time, it passed over the artery to terminate in the other branch, which was on its inner side.

These veins were on the right side, there was but a single trunk in the left extremity.

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*On the appearance of Light during Crystallization*, by H. Rose. Memoir read at the Academy of Sciences of Berlin, July, 1835.—The appearance of light during the formation of crystals has been often observed, but was always considered as an accidental phenomenon. It has never been supposed possible to produce it at will, but I have seen, during the formation of crystals of arsenious acid, a strong light, differing from that observed in the crystallization of other substances, and which we can always reproduce at will.

Two or three drachms of vitreous arsenious acid are to be digested in a matrass of white glass, with an ounce and a half of non-fuming muriatic acid of the usual strength, and half an ounce of water. The whole is now to be boiled, and then allowed to cool as slowly as possible: the best mode of producing this coolness is by very gradually diminishing the flame of the spirit lamp by which the boiling was produced. If now the crystallization is observed in a dark room, it will be found to be accompanied by a vivid light, a spark accompanying the formation of each little crystal: and if we shake the vessel, so that many crystals form at once, a proportional number of sparks is thus produced.

When large quantities of the arsenious acid are employed, as for example, an ounce or an ounce and a half, with a sufficient quantity of diluted acid, the light produced may be so vivid as to illuminate a dark chamber. This phenomenon continues for a very long time before the deposition of the last crystal; thus the cold solution continues luminous to the second or third day, but the light is extremely feeble, and only occurs upon agitation; ultimately, however, it can be no longer produced, proving that it arises from the formation of the crystals, and not from the electricity of friction.

If the warm solution of arsenious acid be rapidly cooled, so as to produce a pulverulent mass, little or no light is produced.

It seems to me that the cause of this light, produced in the formation of crystals, is, that the substance separated from a liquid, in the form of a luminous crystal, was not dissolved in this state, but that this is only formed with the crystal, and that the appearance of light is determined by the production of a new substance under the crystalline form.

It is in the crystallization of sulphate of potash that this light has been most frequently remarked, but it has been always accidentally, and never in the case of pure sulphate of potash, except, as I believe, after the residuum from the preparation of nitric acid. This contains almost always a sesqui-sulphate of potash, which is soluble in water, but which, according to Phillips, is decomposed by crystallization into bisulphate and neutral sulphate of potash, and this last appears to become luminous during crystallization, while it is forming in the liquor, and separating in crystals. There are two isomeric states of arsenious acid known; it is either transparent and vitreous, or porcellaneous and opaque. After fusion it is always transparent, and it is only after some time that it becomes milky and opaque, without increasing in weight. In these two states, the acid has a different specific gravity and a different solubility in water. I have only observed the bright light in the crystallization of the arsenious acid, when treating the vitreous acid in the manner indicated, by hydrochloric acid. When we have thus examined the arsenious, porcellanic, and pulverulent acids, which are obtained by sublimation in calcining the arsenical ore, generally known by the name of rat's poison, I have not observed any light in the slowest cooling; the agitation of the matrass only produces a very feeble one, and this feeble light is chiefly owing to the porcellanic acid still contained in the vitreous acid, but it is not to be compared to the bright light which is shown when the latter is employed. Thus the light from the arsenious acid appears to be owing to this, that in the crystallizing of the vitreous acid it is changed into the porcellanic. The crystals then belong to the porcellanic modifications, and this porcellanization of the vitreous acid is caused simply by the change of the acid from a state completely amorphous into a crystalline one.

The crystals of the arsenious acid, while depositing from a solution of hydrochloric acid, very slowly cooled, are, it is true, transparent, but they derive this transparency from their volume; an accumulation of small crystals of this acid would have a porcellaneous aspect. The formed crystals are always regular octohedrons, and have not the form observed by Wohler, which may be a third isomeric modification of the arsenious acid.

When the vitreous acid has been treated by muriatic acid in the manner described above, and in the proper proportions, and when, after complete cooling, luminous crystals are deposited, we may yet produce a light, which is sometimes vivid, by again heating it to the boiling point, and allowing it to cool slowly. But this light is much feebler than the first, and its production is only due to this, that the solution in muriatic acid still contains the vitreous arsenious acid, the crystallization of which produces the feeble light.

It need hardly be remarked that the theory of new formation does not explain all the cases of luminous appearance which have been observed; and for myself I look on this explanation still as an hypo-

thesis, which will require better observed facts before it can be established. It is thus that Berzelius has observed that light was produced during the crystallization of fluoride of sodium in a fluid which already contained this salt in a state of solution.—*Annalen der Physik und Chemie*, vol. xxxv.—*Journal de Pharmacie*, April, 1836.

*Elimination per Anum of a Portion of the small Intestine.*—Giovanna de Bacca, aged 38 years, of sanguineous temperament, a strong constitution, and the mother of five children, ceased to menstruate for a year, when she was attacked about the middle of December, 1834, with violent abdominal pains, having all the characters of hysteria. This uterine colic, combined with gastric and verminous symptoms, continued for a month. At this period the attending physicians differed in their opinions: some holding that she laboured under a gastric and verminous fever; while others, finding a tumour of a rounded form in the hypogastrium, and connecting this with the amenorrhœa, diagnosticated pregnancy. About the middle of January, 1835, she was suddenly seized with the symptoms of iliac passion, which continued for two days, the 15th and 16th. After an interval of calm for ten days, she passed a globular body, by stool, of such size as to attract the attention of her friends. This proved to be a portion of ileum, of thirty-six inches in length, with irregular openings in different places, but with the canal complete for fourteen inches at one extremity, and seven at the other. It was accompanied by a portion of mesentery, six inches long, and two wide, and at its cœcal extremity was remarkably contracted for about six inches. After this the patient continued to suffer from abdominal pains, with occasional vomiting, which, however, did not prevent her from attending to her affairs. The belly was tympanitic. Towards the end of April, 1835, a slow fever was established, and in this state she remained, with a progressive emaciation, up to the 16th of July, 1835.—*Il Filiatre Sebezio*, from the *Archives Generales de Medicine*.

Dr. Cattaneo, who has recorded this case, is of opinion that the consequent marasmus and low fever were owing to the deprivation of so large a portion of absorbing surface. The case is of great interest, and should be studied in connexion with that most important one published by Dr. M'Keever of this city, in which a portion of small intestine, nearly equal in extent, was separated by sloughing in a case of ruptured uterus, and yet in which a perfect recovery followed.—*Eds.*

## MISCELLANEA.

*Evening Reunions of the College of Physicians.*—The following note of the communications made at the monthly reunions of the King and Queen's College of Physicians, during the last Session, has been obligingly furnished to us by the President:



## PHYSIOLOGY.

Dr. Lendrick on the Nervous System.

Dr. Osborne on certain Voluntary Actions, which by habit become involuntary.

Dr. Churchill on the Length of the Umbilical Cord.

Dr. Evanson on the Alterations in Size and Shape of which the Cranium is susceptible.

Dr. Apjohn on Peculiarities in the Effects of Galvanism applied to Animals.

Dr. West on the mode of inflicting Capital Punishments in different Nations.

Dr. Alcock on the Sense of Taste and Smell, and their connections.

## PATHOLOGY.

Dr. Crampton on the effects of drinking Ardent Spirits, as witnessed in all the systems of the body.

Dr. Graves on a Grinding Motion of the Teeth, occurring in gouty cases.

Dr. Law on the Influence of the Nerves in Disease.

Dr. Crampton on a case of Chronic Hydrocephalus, without any derangement of the Sentient or Intellectual Functions.

As connected with the above communication, Dr. Montgomery exhibited a cast of twins, the one with hydrocephalus, and the other without head or thorax.

Mr. Wallace on Prolapsus Ani.

Mr. Wallace on Convulsions occurring in a Limb after an Accident, succeeded by Tetanus, and on diagnostic marks furnished thereby.

Dr. O'Reilly on the fatal Effect of Grief in a young Lady, who died four days after receiving intelligence of the death of a relative, and in whom, on dissection, no corresponding morbid change was discovered.

Dr. Montgomery on Sudden Death occurring in Enlargement of the Thymus Gland.

Dr. Stoker on the Doctrines of exclusive Solidism and Fluidism.

Dr. Croker on the cases of three Individuals exhibited at the Meeting, in each of which there was a defect in the anterior portion of the bladder, displaying the orifices of the ureters, and through which the urine perpetually flowed.

Dr. Gason on a Protrusion of the small Intestine to the extent of a foot in length, which has existed above two years in a girl who was gored by a cow. There is also Artificial Anus, but she is in the enjoyment of perfect health.

Dr. Montgomery on the Mode of Formation of the Corpus Luteum.

Dr. Law on the Production of several Diseases from Mental Agitation.



## PRACTICE.

Mr. Wallace on the Effects of Hydriodate of Potash, in the dose of fifteen grains daily, in removing a Malignant Tumour.

Dr. Graves on the Efficacy of Opium and Tartar Emetic in the Delirium of Fever.

Dr. Osborne on a Mode of freeing the Bowels in cases of Inflammation or Schirrus of the Stomach, by administering pills coated with substances which do not dissolve till after they have passed the Pylorus.

Dr. Lendrick on a case of Chronic Hydrocephalus, in which Paracentesis was performed.

Dr. Connor on a case, proving the necessity of making the fullest Examination in Diseases of the Uterine or Urinary Passages.

Sir James Murray on the Treatment of Fæcal Accumulations in the Colon.

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*Surgical Society of Ireland.*—Since our last report in the May number of this Journal, this Society has held three meetings, at which the following papers were read:

On Fracture of the Neck of the Femur in the aged, as contrasted with the same accident in the young, by Mr. Porter.

A paper on the Pathology of some Uterine Diseases, by Dr. Browne.

On the Use of Tartar Emetic and Opium in Fever, by Dr. Graves.

Contributions to Pathological Anatomy, by Mr. Smith.

On the Anatomy of the Spinal Column, by Mr. Hamilton Labatt.

Repetition of the Experiments of Panizza on the Nerves of Taste, and the results; with the views of the author on the same, by Mr. Alcock.

A case of Closure of the Bicuspid Valves in an Infant, by Dr. Falloon.

On the Treatment of Fistula Lacrymalis, by Dr. Everard.

On the Application of the Instrument described in our last number, by Mr. L'Estrange, to Compound Fractures of the Jaw, by the author.

At the conclusion of the last meeting, Dr. Jacob addressed the Society from the chair, and congratulated the members on the labours of the past session. He announced that it was the intention of the council to prepare for publication abridgments of the various important papers read at the meetings of the Society from its commencement, so as to form the first of a series of volumes of abridged transactions, similar to those published by the British Association.

In alluding to the important labours of Mr. Alcock, in determining the value of the views of Panizza, he spoke of the advantage to be derived from that part of the organization of the Society, by which sub-committees can be formed to report on such investigations; and he expressed a hope, that the beneficial effects of their operation would be felt during the next session, to which he, in common with all members of the council, looked forward with sincere pleasure.

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